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WRITINGS ON ARCHÆOLOGY.

By Clarence B. Moore.

Certain Shell Heaps of the St. Johns River, Florida, hitherto unexplored. The American Naturalist, Nov., 1892, to Jany., 1894, inclusive. Five papers with illustrations in text, and maps.

Certain Sand Mounds of the St. Johns River, Florida. Parts I and II, Journal of the Academy of Natural Sciences of Philadelphia, Philadelphia, 1894, Vol. X, Quarto, 130 and 123 pages. Frontispieces, maps, plates, illustrations in the text.

Certain Sand Mounds of Duval County, Florida; Two Mounds on Murphy Island, Florida; Certain Sand Mounds of the Ocklawaha River, Florida. Journ. Acad. Nat. Sci. of Phila., 1895. Vol. X. Quarto. 108 pages. Frontispiece, maps, plates, illustrations in text.

Additional Mounds of Duval and of Clay Counties, Florida; Mound Investigation on the East Coast of Florida; Certain Florida Coast Mounds north of the St. John's River. Privately printed, Philadelphia, 1896. Quarto, 30 pages. Map, plates, illustrations in text.

Certain Aboriginal Mounds of the Georgia Coast. Journ. Acad. Nat. Sci. of Phila., 1897. Vol. XI. Quarto, 144 pages. Frontispiece, map, plates, illustrations in text.

Certain Aboriginal Mounds of the Coast of South Carolina; Certain Aboriginal Mounds of the Savannah River; Certain Aboriginal Mounds of the Altamaha River; Recent Acquisitions; A Cache of Pendent Ornaments. Journ. Acad. Nat. Sci. of Phila., 1898. Vol. XI. Quarto, 48 pages. Frontispiece, maps, illustrations in text.

Certain Aboriginal Remains of the Alabama River. Journ. Acad. Nat. Sci. of Phila., 1899. Vol. XI. Quarto, 62 pages. Map, illustrations in text.

Certain Antiquities of the Florida West-Coast. Journ. Acad. Nat. Sci. of Phila., 1900. Vol. XI. Quarto, 46 pages. Maps, illustrations in text.

Certain Aboriginal Remains of the Northwest Florida Coast. Part I; Certain Aboriginal Remains of the Tombigbee River. Journ. Acad. Nat. Sci. of Phila., 1901. Vol. XI. Quarto, 100 pages. Maps, illustrations in text.

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Sheet-copper from the Mounds is not Necessarily of European Origin. American Anthropologist. Jan.–March, 1903. Plates in text.

The So-called "Hoe-shaped Implement." American Anthropologist. July–Sept., 1903. Illustrations in text.

Aboriginal Urn-burial in the United States. American Anthropologist. Oct.–Dec., 1904. Plate.

A Form of Urn-burial on Mobile Bay. American Anthropologist. Jan.–March, 1905.

Certain Aboriginal Remains of the Black Warrior River [Moundville]; Certain Aboriginal Remains of the Lower Tombigbee River; Certain Aboriginal Remains of Mobile Bay and Mississippi Sound; Miscellaneous Investigation in Florida. Journ. Acad. Nat. Sci. of Phila., 1905. Vol. XIII. Quarto, about 200 pages. Maps, illustrations in text.

Certain Aboriginal Remains of the Black Warrior River.

Certain Aboriginal Remains of the Lower Tombigbee River.

Certain Aboriginal Remains of Mobile Bay and Mississippi Sound.

Miscellaneous Investigation in Florida.

BY

CLARENCE B. MOORE.

PHILADELPHIA
1905.

Tuscaloosa
TUSCALOOSA
Foster's Ferry
Landbridge
Hill's Gin L'd'g
Jones Ferry
R H Foster's L'd'g
Gray's L'd'g
MOUNDVILLE
Bohannon's L'd'g
Calvin's L'd'g
Lock No. 7.
Stephens Bluff
McAlpin's Woodyard
N
Arcola
Tombigbee R.
Demopolis
MARENGO
MAP OF THE BLACK WARRIOR RIVER
TO TUSCALOOSA
Scale in miles
0
5
10
1905
X=mound

CERTAIN ABORIGINAL REMAINS OF THE BLACK WARRIOR RIVER.

By Clarence B. Moore.

The Black Warrior river,[1] having its sources in northern Alabama, pursues a southerly course, and passing the city of Tuscaloosa and the town of Moundville, enters the Tombigbee river just above Demopolis.

The Black Warrior river, with the aid of dams and locks, is navigable at the present time, the spring of 1905, from its union with the Tombigbee to a point a short distance above Tuscaloosa,[2] 139 miles, by water. It is with this portion of the river, our course being northward, that the present report of our work during part of the season of 1905 has to do.

Mr. J. S. Raybon, captain of the flat-bottomed steamer from which our archæological work is done, previously had spent considerable time on the river, from Tuscaloosa down, with a companion, in a small boat, stopping at each landing to make careful inquiries as to the location of cemeteries and mounds. The names and addresses of owners of these were furnished us, and, permission to dig having been obtained, there was little to do upon our arrival on the river but to proceed with the digging.

The warm thanks of the Academy of Natural Sciences of Philadelphia are tendered all owners of mounds or cemeteries, who so kindly placed their property at its disposal.

Mounds and Cemeteries.

Mound near Arcola, Hale County.

Mounds near Candy's Landing, Hale County.

Mounds near McAlpin's Woodyard, Greene County.

Mound near Stephen's Bluff, Greene County.

Mound below Lock Number 7, Hale County.

Mound at Calvin's Landing, Greene County.

Mound near Bohannon's Landing, Hale County.

Mound near Gray's Landing, Tuscaloosa County.

Mounds and cemeteries in Tuscaloosa and Hale Counties, near Moundville, Hale County.

Mound in Moundville, Hale County.

Mound near McCowin's Bluff, Tuscaloosa County.

[1] It is said on the authority of the United States Engineer Office, Tuscaloosa, Alabama, that the old name of the river from Demopolis to Tuscaloosa was Warrior, and above Tuscaloosa, Black Warrior; but that the entire river is known now as the Black Warrior.

[2] Additional locks, soon to be completed, will permit navigation a considerable distance farther up the river.

Mound and cemetery near R. H. Foster Landing, Tuscaloosa County.
Mound near Jones' Ferry Landing, Tuscaloosa County.
Mound near Hill's Gin Landing, Tuscaloosa County.
Mound and cemetery below Foster's Ferry Landbridge, Tuscaloosa County.
Cemetery above Foster's Ferry Landbridge, Tuscaloosa County.

Mound near Arcola, Hale County.

In a cultivated field bordering the water, on property of Mr. B. G. Gibbs, of Demopolis, Alabama, is a mound about one-quarter mile in a southerly direction from the landing. The mound, which apparently had long been under cultivation, was a trifle more than 7 feet in height. Its basal diameter, N. and S., was 200 feet; E. and W., 160 feet. In corresponding directions the diameters of the summit plateau were 130 feet and 90 feet. An excavation previously made in the central part of the mound showed it to be of clay at that point

We shall say here, reverting to the subject more fully later in the report, that southern mounds of the class of which this one is, have been found to be domiciliary and not to contain burials as a rule. Sometimes, however, the flat plateaus of such mounds were used as cemeteries, which may be detected by comparatively superficial digging. This mound, dug into in many places by us, yielded no indication of burials.

Mounds near Candy's Landing, Hale County.

These two small mounds are 1.5 miles SSE. from the landing, near the northern side of Big Prairie creek. They were located by our agent, but as we were unable to obtain permission to investigate them, they were not visited by us.

Mounds near McAlpin's woodyard, Greene County.

These mounds, all in the swamp, required the services of a guide to locate them. All evidently were domiciliary and all were dug into superficially by us, without material result. They are composed of sand and clay, in varying proportions.

One of these mounds, about one-half mile in an easterly direction from the landing, is approximately 6 feet in height. The basal diameters are 55 feet E. and W., and 44 feet N. and S. The diameters of the summit plateau in the corresponding directions are 33 feet and 23 feet.

About one-quarter mile in a SSW. direction from the other is a mound 4 feet 9 inches high. The basal diameters are 62 feet and 50 feet; those of the summit plateau, 25 feet and 17 feet. This mound is of irregular outline through wash of floods.

About one-quarter mile NE. from the landing is the third mound, very symmetrical and almost exactly square. Its height is 6 feet; its basal diameter, 80 feet; the diameter of its summit plateau, 45 feet. Its sides almost correspond with the cardinal points of the compass. To the east is a great excavation with steep sides, whence came the material for its making.

Mound near Stephen's Bluff, Greene County.

This mound, at the landing, oblong and very symmetrical, with steep sides, and summit plateau as level as a floor, is on property belonging to Dr. J. W. Clements of Bartow, Polk County, Florida. Its height is 9 feet 9 inches. Its diameters are: at base, NNE. and SSW., 150 feet; ESE. and WNW., 195 feet; summit plateau in corresponding directions, 100 feet and 135 feet. The mound was dug into superficially by us in many places, in a vain search for human remains or artifacts.

Mound below Lock Number 7, Hale County.

Within sight from the water, on the eastern bank of the river, about three-quarters of a mile below lock and dam Number 7, on property belonging to the Black Warrior Lumber Co., of Demopolis, Alabama, is a mound of somewhat irregular outline, 5 feet 6 inches high, 48 feet and 40 feet in basal diameters. The mound was dug into by us without success.

Mound at Calvin's Landing, Greene County.

Within sight from the landing, almost at the edge of the bank, on property of Mr. W. B. Inge, of Greensboro, Alabama, is a square mound of clay, 4.5 feet in height, having a basal diameter of 40 feet. No measurement was taken of the summit plateau, which seemed to have been enlarged for the foundation of a house that had been upon it. No burial or artifact was met with, though considerable digging was done by us.

Mound near Bohannon's Landing, Hale County.

Following a road from the landing, through the swamp about three-fourths of a mile in an ESE. direction, one reaches a clearing on property of Mr. C. D. Cummings, Stewart Station, Alabama, in high swamp, where is a deserted house, and, nearby, the mound with a small building upon it. This mound, the sides of which almost correspond with the cardinal points of the compass, is 13.5 feet in height. Neighboring trees show a deposit of mud left by freshets, almost 8 feet from the ground; hence this mound must have afforded a welcome refuge to the aborigines in flood-time. The western end of the mound is raised about 2.5 feet higher than the rest of the mound. The maximum diameter of the mound, E. and W., is as follows: 25 feet under each slope; the lower part of the summit plateau, 34 feet; beneath slope leading to higher part of summit plateau, 18 feet; higher part of summit plateau, 27 feet; total 129 feet. The maximum diameter N. and S. is 115 feet, 65 feet of which belong to the summit plateau. Considerable digging to a depth of from 4 to 5 feet yielded in one place fragments of a human skull.

Mound near Gray's Landing, Tuscaloosa County.

In a cultivated field, on property of Mr. James W. Strudwick, of Tuscaloosa, Alabama, near the landing, was a mound which had been so much ploughed over that a mere rise in the ground remained. Considerable digging failed to show that it had been used for burial purposes.

Mounds and Cemeteries, in Tuscaloosa and Hale Counties, near Moundville, Hale County.

This famous group of mounds, near Moundville,[1] lies between the town and the Black Warrior river which is about one mile distant from the town. The larger, better preserved, and more important mounds belonging to this group are in Tuscaloosa county, on property of Mr. Hardy Clements, of Tuscaloosa, Alabama. Other interesting mounds completing the group, belonging to Mr. C. S. Prince, of Moundville, are in Hale county, the county line dividing the Clements and Prince estates. The cordial thanks of the Academy are tendered Messrs. Clements and Prince for full permission to dig, both in the mounds and in the level country surrounding them, a permission which, coming as it did in the planting season when our presence was an inconvenience, is especially appreciated.

So far as we can learn, no report of investigation at Moundville has been published, though an occasional reference, not always entirely correct, has appeared in archæological publications.

We here give a survey of these mounds, prepared at the time of our visit to Moundville by Dr. M. G. Miller, who, in addition, as in all our former archæological field studies, had charge of the anatomical work of the expedition.

The heights of the various mounds, which depend on the side whence the altitude was taken, are as follows:

Mound A.—21 feet 10 inches.
Mound B.—57 feet.
Mound C.—From 18 feet 9 inches to 20 feet 6 inches.
Mound D.—16 feet 6 inches.
Mound E.—From 15 feet 7 inches to 19 feet 6 inches.
Mound F.—From 15 feet 9 inches to 21 feet 2 inches.
Mound G.—From 20 feet 9 inches to 22 feet 6 inches.
Mound H.—From 9 feet 6 inches to 10 feet 4 inches.
Mound I.—13 feet.
Mound J.—From 13 feet 10 inches to 16 feet.
Mound K.—From 13 feet 9 inches to 14 feet 2 inches.
Mound L.—From 12 feet 9 inches to 14 feet 10 inches.
Mound M.—From 11 feet 7 inches to 12 feet 9 inches.
Mound N.—From 18 feet 11 inches to 21 feet 2 inches.
Mound O.—From 16 feet 9 inches to 21 feet 7 inches.
Mound P.—From 23 feet 6 inches to 26 feet 10 inches.
Mound Q.—From 11 feet 5 inches to 17 feet.
Mound R.—20 feet 10.5 inches.
Mound S.—3 feet.
Mound T.—6 feet 5 inches.

This great group of mounds, all above the highest level attained by the river,

[1] The town, until recently, was called Carthage, and is thus spoken of in various publications.

BLACK WARRIOR RIVER

W

C

D

U

R

V

B

Q

E

P

A

F

O

N

County line

S

MOUNDS NEAR MOUNDVILLE, ALA.

Scale in feet

0 50 100 300

1905

G

M

T

L

H

K

J

I

so that no need for refuge from flood impelled their building, lies on a level plain extending back from the river bluff. This plain could have afforded ample space at all stages of the river for the games and ceremonies of an aboriginal center, which at one time Moundville must have been. Evidence of aboriginal occupancy extends in all directions beyond the limits of the circle.

The mounds, which have been approximately oblong or square in outline, with summit plateaus usually level, are so arranged that two principal ones are surrounded by the rest. One of these, Mound A in the survey, fairly central, exceeds in area any of the others, the basal diameters being 195 feet and 351 feet; while Mound B surpasses the others in altitude, its height being 57 feet.

Near many of the mounds are depressions, formed by excavating the material for their building, some containing water, others drained by means of ditches. These depressions are not present within what, for convenience, we call the circle formed by the mounds (although it is not exactly circular), but are sometimes to one side of the mounds, sometimes outside the circle; and the mounds within the enclosed space do not have such depressions. It is evident, then, that the mounds were built according to some fixed plan, and that these shallow ponds were intentionally placed outside the area of the circle, perhaps that those living on the plain within could have more convenient access to the mounds.

Certain of the mounds have graded ways, more or less distinct, leading to their summits. These ways are shown on the survey. Others of the mounds may have had similar ways; but if so they have become effaced through cultivation or wash of rain, or both.

At the northern side of Mound B is an artificial plateau, marked V on the survey, one and two-thirds acres in extent, roughly speaking. This plateau ranges in height from 2 feet 6 inches to 16 feet 5 inches, the greatest altitude being at the northeastern part.

On the survey are shown deep gullies formed by wash of rain which seems gradually to be eating away the territory on which the mounds are situated.

The ridge north of Mound R, particularly described in the report, is marked U on the survey; and W is the field north of Mound D, where much digging was done.

Excavations made previous to our visit to Moundville are shown on the plans of the various mounds.

Although we were provided with efficient apparatus in abundance to take photographs, and there were those on our steamer amply able to do so, no photographic illustrations of the Moundville mounds will be given in this report. Long experience has shown us that a photograph of a mound, through undue exaggeration of the foreground, is worse than valueless; it is misleading. A mound, stupendous to the human eye, appears quite ordinary in size in a photograph.

Although there had been considerable digging into the smaller mounds of Moundville previous to our visit, no record has been kept of the result, and the artifacts, if any were found, are not available.

On the other hand, one continually hears of interesting "finds" made in the level ground in the vicinity of the mounds, and the history of the objects discovered can be traced.

We are indebted to Mr. C. S. Prince, of whom we have spoken as one of the present owners of the Moundville mounds, for exact details of the discovery there of effigy-pipes of stone, many years ago.

Mr. O. T. Prince, father of Mr. C. S. Prince, acquired the property on which the mounds are in 1857, and died in 1862. The pipes were found at the time of Mr. O. T. Prince's tenure of the property, by two colored men who were digging a ditch near one of the smaller mounds of the group—the one marked M on our survey.

These pipes were held for a long time in the Prince family, and were shown, with certain other relics, before a scientific society in 1875, when a photograph of them was made (Fig. 1). Later, one of the pipes was disposed of and, fortunately, fell into the hands of Gen. Gates P. Thruston, who describes and figures it.[1]

FIG. 1.—Antiquities found at Moundville.

Two of the pipes shown, and one that was excluded from the photograph on account of its inferior condition, with equal good fortune to science, were procured by Professor F. W. Putnam, for Peabody Museum, Cambridge, Mass. They are shown in Figs. 2, 3, from photographs kindly furnished by Professor Putnam.

At the time the pipes went to Cambridge, a stone disc, 8.75 inches in diameter, found in the level ground at Moundville, was disposed of to Professor Putnam and is shown here in Fig. 4, from a photograph also courteously furnished by him. A reproduction of a drawing of the design on the disc, made by Mr. C. C. Willoughby, is given in Fig. 5. Mr. Willoughby informs us that a part of the design at the

[1] "Antiquities of Tennessee," p. 187.

FIG. 2.—Effigy-pipes of stone. Moundville.

FIG. 3.—Effigy-pipes of stone. Side view. Moundville.

lower left hand side has scaled off. The dotted lines show where the stone has come off in thin flakes. The design is apparent on the stone in these places, but it lacks distinctness.

Some years ago, a colored man, ploughing near one of the larger mounds at Moundville, found a superb hatchet and handle carved from a solid mass, probably amphibolite,[1] and highly polished. This hatchet (Fig. 6) was procured by Mr. C. S. Prince, from whom it was obtained by the Academy of Natural Sciences.

FIG. 4.—Disc of stone. Moundville. (Diameter 8.75 inches.)

The hatchet, 11.6 inches in length, with a neatly made ring at the end of the handle (not clearly shown in the reproduction), resembles, to a certain extent, the one found by Dr. Joseph Jones, near Nashville, Tenn., and described and figured

[1] All determinations of rock in this paper and in the three which follow it, have been made by Dr. E. Goldsmith, of the Academy of Natural Sciences of Philadelphia. As it has not been deemed advisable to mutilate specimens for analysis and for microscopical examination, Doctor Goldsmith has not always been able to identify materials with the exactness he otherwise could.

by him.[1] C. C. Jones describes and figures[2] this same hatchet, and speaks of the finding of another exactly similar in South Carolina.

Thruston also describes and illustrates[3] the Jones hatchet, and refers to the South Carolina specimen, and to still another, somewhat ruder in form, as coming from Arkansas.

It is interesting in this connection to note the presence of "celts" with stone handles in Santo Domingo,[4] though these hatchets are much inferior to the specimen from Moundville.

FIG. 5.—Design on disc from Moundville. (Half size.)

The monolithic hatchet from Moundville seems to be much more beautiful than the one discovered by Doctor Jones, for it leaves nothing to be desired as to finish, and the graceful backward curve of the part of the handle above the blade seems more artistic than the form of the corresponding portion of the Jones hatchet, which is straight.

Some years ago Prof. E. A. Smith, State Geologist of Alabama, visited Mound-

[1] "Explorations of the Aboriginal Remains of Tennessee," p. 46.
[2] "Antiquities of the Southern Indians," p. 280; Plate XII.
[3] *Op. cit.*, p. 259.
[4] J. Walter Fewkes, "Preliminary Report on an Archæological Trip to the West Indies," Smithsonian Miscellaneous Collections, Quarterly Issue, Vol. I, 1904. Plate XXXIX.

FIG. 6.—Monolithic hatchet from Moundville. (Length 11.6 inches.)

ville and received as a gift a disc about 12.5 inches in diameter, said to be of sandstone, of the same well-known type[1] as the one referred to as being in Peabody Museum. This type is characterized by marginal notches or scallops usually with incised, circular lines on one side below them. The disc obtained by Professor Smith, however, like the one in the Peabody Museum, has an interesting incised

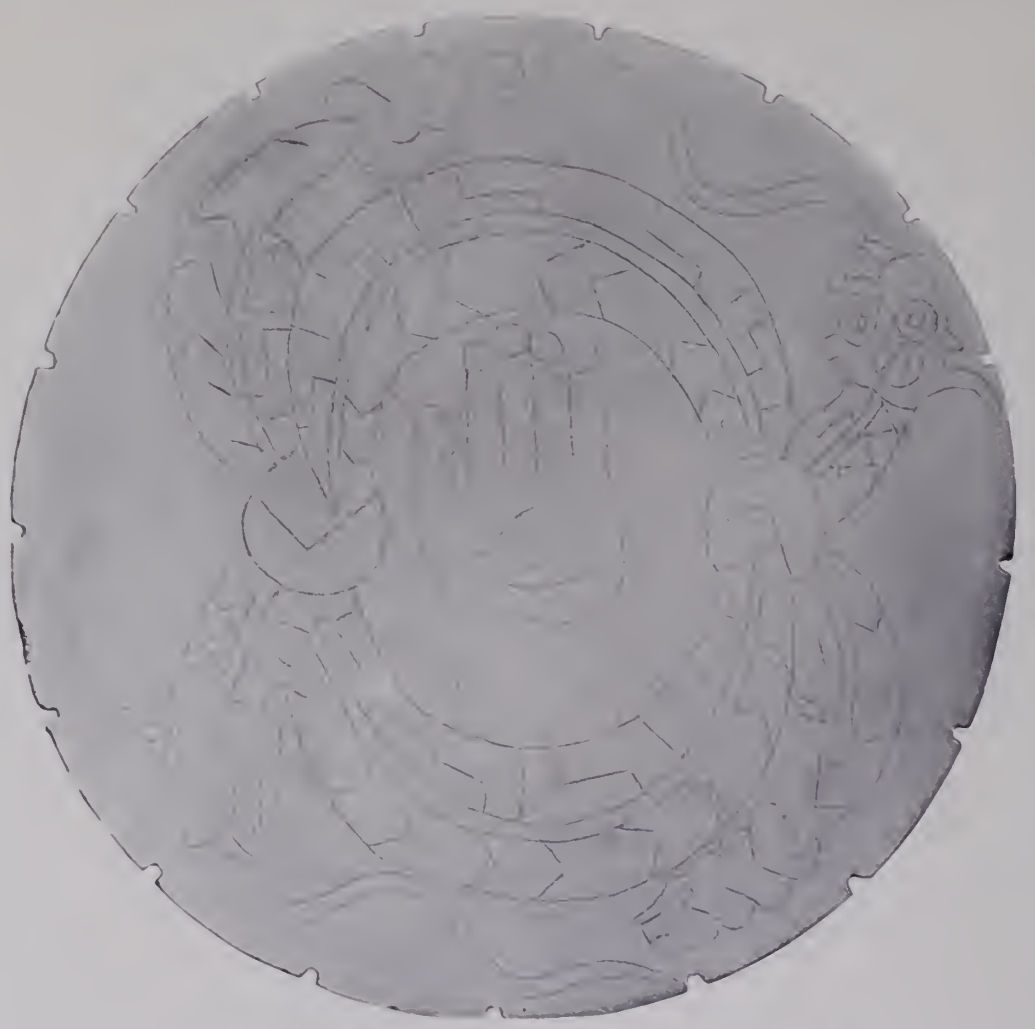


FIG. 7.—Disc of stone from Moundville. (Diameter about 12.5 inches.)

decoration on the side opposite that bearing the incised circles, in which it differs from the ordinary discs of this type. The disc in question has on the reverse side an incised design of two horned rattlesnakes knotted, forming a circle,[2] within

[1] Rau, Archæological Collection of the United States National Museum, p. 37 *et seq.* Also Holmes, "Art in Shell," Second Rep. Bur. Eth., 1880-81, Plate LVII, p. 277 *et seq.*

[2] Our friend Señor Juan B. Ambrosetti, Curator of the National Museum, Buenos Aires, who, it may be said, incidentally, has been much impressed by certain points of resemblance in the aboriginal culture of Argentina and that of the United States, in his "El Bronce en la Region Calchaquí," Anales del Museo Nacional de Buenos Aires, Tomo XI (Ser. 3ª, t. IV), pp. 286, 287, describes and figures a disc of bronze, 33½ cm. in diameter, now in the National Museum of Buenos Aires, around the margin of which two serpents form a circle.

which is a representation of an open human hand bearing an eye upon it. This disc was lent to the National Museum, where it remained a long time, but is at present in the Museum of the University of Alabama, near Tuscaloosa, where we had the pleasure of examining it in company of Professor Smith, through whose kindness and that of Mr. James A. Anderson of the Geological Survey of Alabama we are able to give a photographic reproduction of it (Fig. 7). This interesting disc is described and figured by Professor Holmes,[1] who, as any cautious archaeologist would have done at that time, rather discredited its genuineness. In view of discoveries made since, however, the disc may be accepted without suspicion, and such is Professor Holmes' opinion at the present time.

Fig. 8.—Water-bottle from Moundville. (Diameter 6.12 inches.)

In the museum of the University of Alabama, near Tuscaloosa, is part of a water-bottle, said to have been found at Carthage, which place, the reader will recall, is now known as Moundville. This vessel,[2] which was courteously lent to the Academy of Natural Sciences by Prof. E. A. Smith and Mr. James A. Anderson, and is shown in Fig. 8, bears upon the base an incised design. Around the body of the vessel, which is somewhat broken, have been four designs similar, in the main, to

[1] *Op. cit.*, p. 278, Plate LXVI, fig. 6.

[2] All measurements of earthenware vessels given in this report and in the three papers which follow it are approximate.

We quote from our preceding reports: "It must be borne in mind in respect to process work that reductions in size are made with regard to diameter and not area. If a diagram 4 inches by 2 inches is to be reduced one-half, each diameter is divided by two, and the reproduction, which is called half size, is two inches by one inch. The area of the original diagram, however, is eight square inches, while that of the so-called half size reproduction is two square inches or one-quarter the area." In other words the reduction is linear.

that on the base. One of these designs is given in diagram[1] in Fig. 9. Near the head, in certain instances, where space has allowed it (Fig. 10), and on each tail, is a swastika enclosed within a circle. Professor Putnam writes us "This design [the bird-figure] shows the characteristic duplication of parts in a most interesting manner. In the centre of the figure we notice the symbol which is common to many of the shell gorgets from Tennessee and which corresponds to the symbol on the Korean flag as well as to the well-known Chinese symbol indicating the positive and negative, or male and female." Professor Putnam next points out how, from this central symbol two heads of a bird which he identifies as a woodpecker, extend

FIG. 9.—Vessel from Moundville. Decoration. (About half size.)

FIG. 10.—Vessel from Moundville. Decoration. (About half size.)

and how on each side of these heads a symbolical wing of the bird is seen. Then on the right and left of the central portion are two tails of the bird, on each of which is the symbol of the swastika. "Altogether," says Professor Putnam, referring to the whole design, "this is a beautiful symbolic figure and in general workmanship and design it resembles some of the sculptures on bone from the Ohio mounds."

The bird shown in the design has been identified by Mr. Witmer Stone, of the Academy of Natural Sciences, as the ivory-billed woodpecker (*Campephilus principalis* Linn.), a bird now found in one part of Mississippi and in parts of Florida, but having ranged well north of Moundville in former times. The aboriginal artist shows the tongue of the bird extended to a somewhat exaggerated degree, although the thrusting out of the tongue is a habit common to woodpeckers. Emerging from within the open bill are various symbols, perhaps emblematic of bird-speech. The call of the ivory-billed woodpecker resembles that of a young child, according to Wilson.

The tail of the woodpecker, when spread, is fan-shaped and the individual feathers at the extremity are pointed—peculiarities carefully shown by the aboriginal artist. When spread, the tail of the woodpecker is used by the bird to

[1] It may be said here, as applying to these diagrams and others of the Moundville specimens, that proportions have been so far modified as was necessary to portray a curved field on a flat surface, though otherwise the representation is exact.

prop itself up and thus steady it at its work. This feature would no doubt strike the aboriginal eye and thus cause it to attach more importance to the tail of the woodpecker than to its wings.

Among the wonderful objects of wood found by Cushing at the settlement of Marco, Island of Marco, one of the Ten Thousand Islands, which lie off the southwestern Florida coast, is the picture of a bird painted in colors on a tablet of wood.[1] Mr. Cushing believes the painting to be that of a jay or kingfisher, "or more probably still, of a crested mythic bird or bird-god, combining attributes of both." Four contiguous circles in line are represented as leaving the open bill of this bird, which Mr. Cushing believes to be speech symbols.

The ivory-billed woodpecker was held in high esteem by the aborigines. Its head, modelled in gold, has been found in Florida.[2] Catesby[3] tells us that "the Bills of these Birds are much valued by the *Canada Indians*, who make Coronets of 'em for their Princes and great warriers, by fixing them round a wreath, with their points outward. The *Northern Indians* having none of these Birds in their cold country, purchase them of the Southern People at the price of two, and sometimes three Buck-skins a Bill."

We shall now describe our digging at Moundville, with certain details discussed in advance, to avoid repetition.

This work occupied thirty-five days with thirteen trained diggers from our boat and five men to supervise. In addition, local help, ten men per day on an average, was employed, mainly to fill excavations and to sink trial-holes in the summit plateaus of the mounds. Long experience had shown us that square and oblong mounds, in the south at least, were not designed primarily as burial mounds, although sometimes burials were made in them, locally, in graves dug from the surface. These trial-holes, averaging four feet square and four feet deep, when made in sufficient number on the plateau of a mound, were considered to be an excellent method of detecting the presence of burials, for, although the entire surface of the plateau was not dug through, it was extremely unlikely that skeletons or bundles of bones could all lie in an area not dug into by at least one of a number of well distributed shafts. When the presence of human bones was detected, more complete methods of investigation were adopted.

The material of which the mounds were made was clay, clay with admixture of sand, and, in places, to a limited extent, almost pure sand. On the whole, however, the mounds were chiefly of clay with an admixture of sand, often a very small percentage.

Inside as well as outside the circle, on the level ground, were many sites giving evidence of aboriginal occupancy. These sites were more or less thoroughly investigated by us by means of trial-holes. These holes were not always as deep

[1] Proceedings of the American Philosophical Society, Phila., Vol. XXXV, No. 153, Plate XXXIV, p. 98 *et seq.*

[2] Rau, Smithsonian Report, 1878, p. 299.

[3] "The Natural History of Carolina, Florida and the Bahama Islands," London, 1731, Vol. I, p. 16.

as those that we dug into the mounds, since, when undisturbed soil was reached, continuance was unnecessary. In our report we give records only of sites where tangible results were obtained. In some sites no burials were met; in others, burials were few and without artifacts.

The form of burial at Moundville did not include urn-burial so far as we were able to determine, but did not vary otherwise from methods of burial found in various southern states. When the entire skeleton was present, as a general rule it lay at full length on the back. There was no orientation of skeletons, the skulls being directed toward all points of the compass. Had it been otherwise, our fortune at Moundville would have been better, as vessels of earthenware almost always lay near the skull, hence by following the skeleton from the feet up, we could have reached these vessels with the aid of a trowel rather than, as was too often the case, by unintentional blows from a spade.

All human remains at Moundville were badly decayed and nearly all were represented by fragments only. No crania were saved.

Parts of crania found by us were carefully examined for evidence of antemortem compression, but none was met with, save in one case where it seemed to us to be evident. This fragment, the anterior part of a skull, was sent by us to the National Museum. The following report as to the fragment was received from Dr. Ales Hrdlicka: "The skull shows in a moderate degree an artificial frontal flattening. This variety of deformation was produced when an infant, by the prolonged application of a direct pressure (pad or board) over the forehead, a custom which existed in several of the Gulf States." Therefore, frontal flattening was not unknown at Moundville. It must be borne in mind, also, that as the crania examined were usually in small fragments, evidence of compression in many could well have escaped us.

The earthenware of Moundville is shell-tempered as a rule, but not always. In large cooking vessels the particles of shell are coarse and show on the surface. In the better ware the pounded shell is less noticeable, because it is more finely ground and for the reason that the Moundville ware, except in the case of cooking-vessels, is almost invariably covered with a coating of black, more or less highly polished on the outer surface. This coating was not produced by the heat in firing the clay, but was a mixture intentionally put on by the potters. Scrapings from the surface of a number of vessels were furnished by us to Harry F. Keller, Ph.D., who, by analysis, arrived at the conclusion that the black coating on the earthenware is carbonaceous matter. Under the microscope it appears as a lustrous coating, which must have been in a liquid state when applied. Chemicals have little effect upon the coating; it is insoluble in alcohol and in ether, not attacked by acids, and but slightly affected by caustic alkali. From its appearance and chemical behavior, Dr. Keller concludes that it must have been applied in the form of a tarry or bituminous matter which, upon heating out of contact with air, was converted into a dense variety of carbon. Doctor Keller is of opinion that a mixture of soot and fat or oil might produce the effect, though the numerous lustrous particles resembling graphite rather suggest the carbonization of a tar-like substance.

The earthenware of Moundville is characterized by monotony of form, the water-bottle, the bowl, and the pot being almost the sole representatives of the potter's art met with in its graves. It is to the striking incised decoration that we must look for the great interest attached to the earthenware of the place.

Stamped decoration was absent. Not only was the complicated stamp of the south Appalachian region, which extends across to southern Alabama, not met with in a single instance, but our old, intimate, and hitherto ever-present friend, the small check-stamp, was absent also.

The custom of perforating the base of vessels placed with the dead, in order to "kill" the vessels that their souls might be free to accompany the spirit of the departed, was not practised at Moundville, though it extended for a distance up the Tombigbee river, below its junction with the Black Warrior.

The reader will note in the detailed description of the discoveries at Moundville, which follows, that not one object met with by us, either through its method of manufacture or the material of which it was made, gave indication of influence of Europeans. The greatest pains were taken by us during the entire investigation to note the presence of any object obtained from the whites. Presumably, later Indians did not use Moundville as a center for burials.

All objects found at Moundville by us, with the exception of certain duplicates, which were sent to Phillips Academy Museum, Andover, Mass., are to be seen at the Academy of Natural Sciences of Philadelphia.

MOUNDVILLE.

Mound A.

Mound A, the central one of the Moundville group, about 22 feet in height and irregularly oblong in horizontal section, has a summit plateau 155 by 271 feet. Thirty-three trial-holes were sunk in the plateau, showing yellow clay with a slight admixture of sand. One small arrowhead of jasper alone rewarded our search.

Mound B.

Mound B, 57 feet in height, seems stupendous when viewed from the level ground. Two steep causeways, one at the north, the other at the east, lessen somewhat the angle of ascent, which, on the western side, is thirty-eight degrees. The summit plateau, roughly oblong, is 118 feet in width by 149 feet in length. Twenty-two trial-holes sunk by us yielded neither human bones nor artifact. The superficial part of the mound is of yellow clay with a small percentage of sand.

Field North of Mound B.

This field, probably between one and two acres in extent, and bordering the northern side of Mound B, is under cultivation and shows on its surface numerous traces of aboriginal occupancy. Eighteen trial-holes and 150 feet of narrow trench,

all about 2.5 feet deep, were excavated through loamy material to undisturbed soil. No human remains were encountered. The only object of interest met with among the usual midden debris was a hoe-shaped implement of granitic rock, 5 inches long by 4.75 inches wide. An attempt at perforation has been almost carried through on one side, but has been barely started on the other side (Fig. 11).

FIG. 11.—Ceremonial axe. Trench near Mound B. (Length 5 inches.)

In a paper by us, published in 1903,[1] we adduced considerable evidence to prove, what others had suggested before, that the so-called hoe-shaped implement is a ceremonial axe.

FIELD WEST OF MOUND B.

This field, lying directly to the west of Mound B, and considerably smaller than the one just described, was rather unpromising in appearance. Eight trial-holes gave no material result, and, from the appearance of the soil, no promise of success.

On the border of this field, overlooking a deep gully made by wash of rain, were several slight eminences consisting of a mixture of loamy sand and clay, in part washed away. These undulations, small, low, and of irregular shape, were thoroughly searched.

In a mingling of bones in which at least three adults and one child were represented, was Vessel No. 1, a small bowl with three protuberances on one side and three on the other—doubtless conventionalized head, tail, and four legs (Fig. 12).

FIG. 12.—Vessel No. 1. Field west of Mound B. (Diameter 5.4 inches.)

FIG. 13.—Vessel No. 3. Field west of Mound B. (Diameter 6 inches.)

[1] "The So called 'Hoe-shaped Implement,'" Amer. Anthropologist, Vol. V, pp. 498–502, July–September, 1903.

Near Vessel No. 1 were Vessel No. 2 (a small, undecorated water-bottle with wide mouth), and a discoidal stone 1 inch in diameter.

Near the skull of a child, whose skeleton lay at full length on the back, was Vessel No. 3, a bowl with semiglobular body and flaring rim, undecorated save for a notched margin (Fig. 13).

Besides the usual midden debris there were in the soil, apart from human remains, a human head and the head of a fish, imitated in earthenware, which had formed parts of vessels; a rough arrowhead or knife, of chert; six discs made from potsherds, one very neatly rounded; and an interesting representation of a human hand, done in hard and polished earthenware, having two holes for suspension (Fig. 14).

FIG. 14.—Pendant of earthenware. Field west of Mound B. (Full size.)

MOUND C.

Mound C, overlooking the river, an irregular pentagon in horizontal section, has a basal circumference of about 485 feet while the circumference of its summit plateau is 295 feet. As the mound is on a decided slope, near land seemingly artificially depressed, and is bordered by a ravine on one side, the height is difficult to determine, varying locally between 9 feet and 20 feet, approximately.

Twenty-one trial-holes were sunk in the summit plateau, in some of which we came upon human remains almost at once.

In one hole, 4 feet down, was a bunched burial.

In another hole, 2 feet from the surface, was a single skull with a bunch of bones badly decayed and crushed. With these bones were a small quantity of mica and Vessel No. 1—a water-bottle painted red, with decoration in cream-colored paint (Fig. 15). Half of the decoration, which is similar to the other half, is shown in diagram in Fig. 16. This water-bottle proved to be the only vessel with painted decoration found by us at Moundville. Near it was Vessel No. 2 in fragments. This vessel, a cup, since put together, has a rather rude, incised decoration shown in Fig. 17. In the same hole, 3 feet distant, were small fragments of human bone and bits of pottery.

From other excavations came the usual bones, pebble-hammers, and bits of pottery, and two shells.

While digging the trial-holes it was noticed that no human remains were discovered in the southern half of the plateau, and that the soil of almost the entire northern half of the plateau was blackened with admixture of organic matter. With these facts in mind, we determined to dig superficially that part of the plateau which seemed to promise favorable results, but first it was decided to get some idea as to the body of the mound by an excavation of considerable size. Consequently an excavation 24 feet square, near the central part of the plateau, was carried to a depth of 16.5 feet, or 1 foot below previously undisturbed ground, where the excavation had converged to dimensions of 14 feet by 16 feet. A small hole, carried

FIG. 15.—Vessel No. 1. Mound C. (Height 8 inches.)

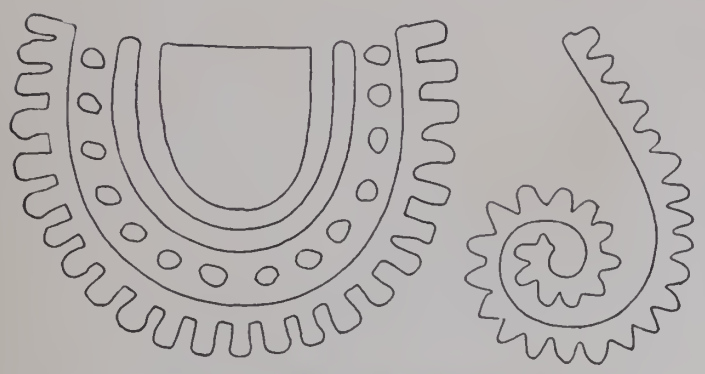


FIG. 16.—Vessel No. 1. Decoration. Mound C. (About half size.)

FIG. 17.—Vessel No. 2. Mound C. (Diameter 4 inches.)

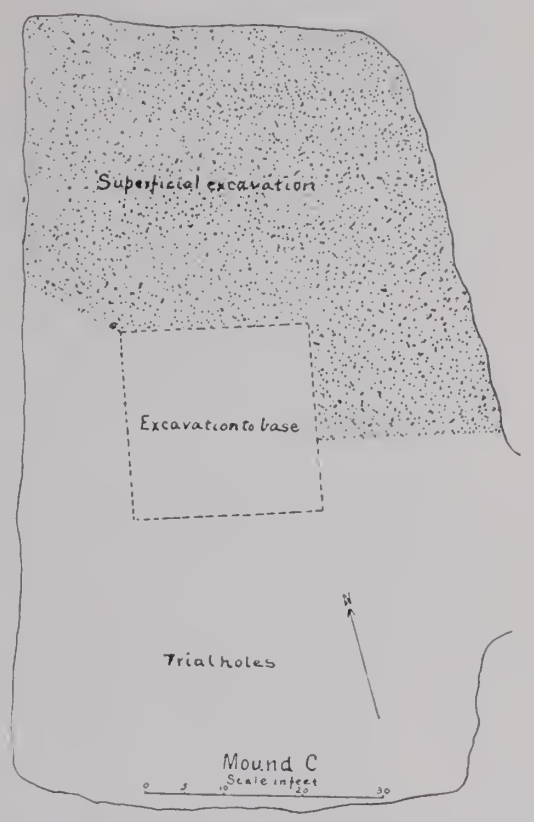


FIG. 18.—Plan of excavations. Mound C.

considerably deeper, substantiated our belief that the base of the mound had been reached. A plan showing the excavation and the superficial work done by us in this mound is given in Fig. 18.

In the northeastern part of the great excavation burials were met with at a depth of from 2.5 feet to 4.5 feet.

Two and one-half feet from the surface, with no burial remaining, was a handsome disc of metamorphic gneiss, 10.25 inches in diameter, with scalloped rim and with incised decoration on one side only (Fig. 19). On one side of the disc are traces of paint.

In an earlier part of this report we have described the finding of two stone discs at Moundville, previous to our visit, and have given references to works in which the area of distribution of large stone discs and slabs is described and their probable use discussed. Stone discs and slabs[1] were found by us on many occasions at Moundville, as will be noted in this report, and in each case the disc or the slab was more or less thickly smeared with paint, sometimes cream-colored, sometimes

[1] Compare, Jesse Walter Fewkes, "Two Summers' Work in Pueblo Ruins," 22nd Ann. Rep. Bur. Am. Eth., Part I, p. 185 *et seq.*, where ceremonial slabs found in Arizona are described.

red. The cream-colored paint upon one of the discs, analyzed by Dr. H. F. Keller, proved to be an impure white-lead. White-lead, as the reader is aware, is lead carbonate and of the same composition as the incrustation frequently found on the sulphide ore of lead. Masses of galena (lead sulphide) are often found in the mounds,

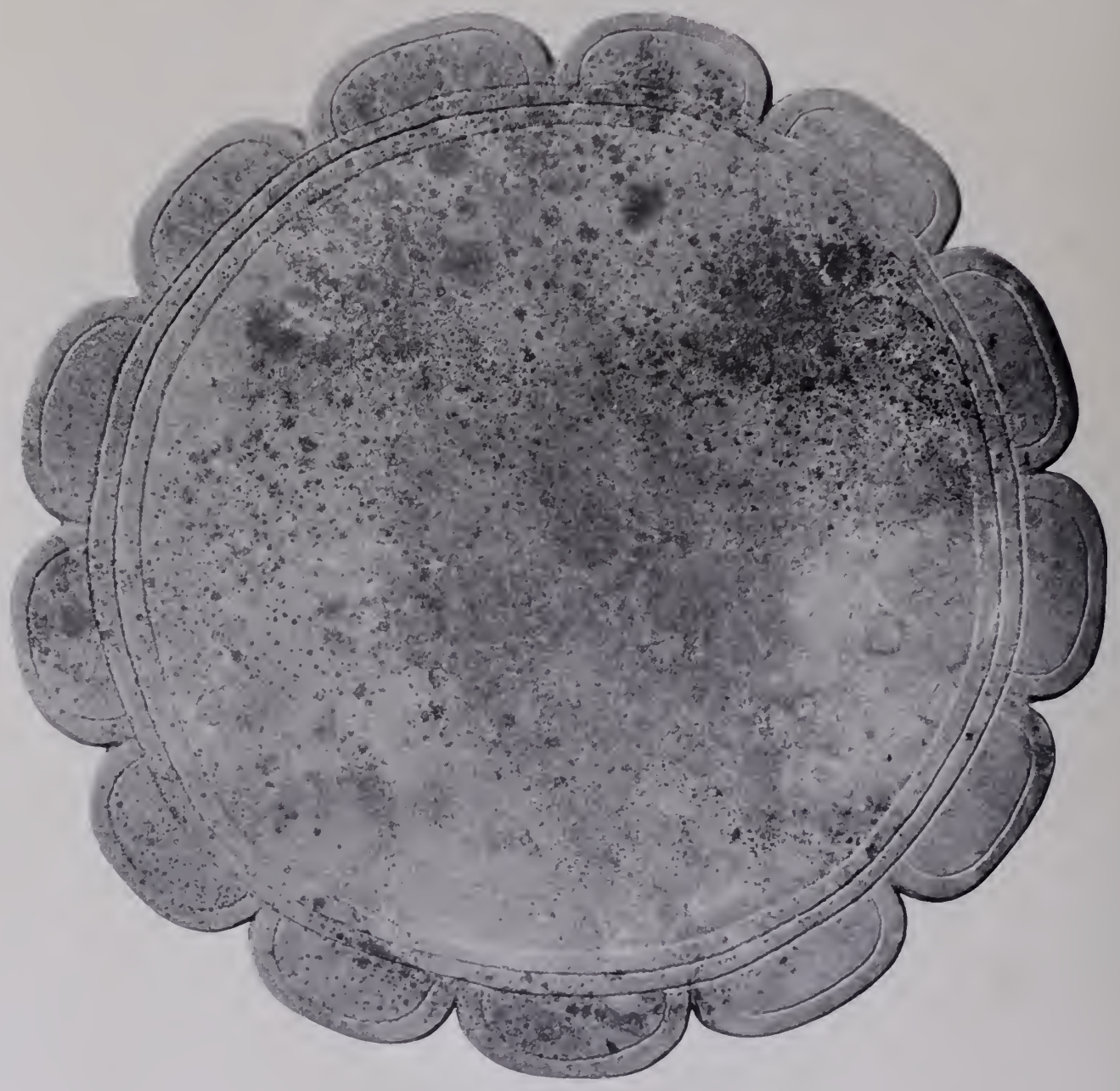


FIG. 19.—Stone disc. Mound C. (Diameter 10.25 inches.)

and as the reader will see, such masses were met with by us at Moundville. According to Dr. Keller, even a careful quantitative analysis of the carbonate deposit from galena would not show whether it was originally the manufactured pigment or the

native carbonate; therefore we cannot determine chemically whether or not the paint on the disc is European white-lead.

It is out of the question to suppose that aborigines manufactured white-lead from the sulphide ore, the process being too complicated, necessitating, as it does, the reduction of the sulphide ore to metallic lead and the production of the carbonate paint from the metal. Therefore, as to the provenance of this paint we have three hypotheses:

1. That the paint was made by Europeans.

2. That the paint is carbonate of lead scraped by the aborigines from masses of galena.

3. That the paint, originally of silver color, was ground from masses of galena and that this finely-ground lead sulphide, during long lapse of time in the mounds, became the carbonate. This hypothesis is strengthened by the fact that in very many cases we have found masses of galena in the mounds presenting facets produced by rubbing, and in some cases hollows probably made in the same way. Doctor Keller, however, is of opinion that paint made in this way would show, at the present time, glittering particles of galena that had not undergone change.

As the result of our investigations, we believe the foregoing to be the only ways of accounting for the presence of white-lead in the mounds. In view of the fact that no object surely of European provenance was found in the mounds or cemeteries of Moundville, and the knowledge that the aborigines had the material at hand to manufacture a lead paint with the aid of bear's grease, it seems conclusive to us that the paint on the discs and slabs is purely of aboriginal origin.

The universal presence of paint upon these discs and slabs seems to offer a clue to the purpose for which they were used, and, until a better suggestion is offered, we shall consider them palettes for the mixing of paint.

Beneath this disc in Mound C were three vessels, two badly crushed (Vessels Nos. 3 and 4), the third (Vessel No. 5), with a handle broken and missing, having an incised scroll decoration of a pattern to be figured several times in other parts of this report

Vessel No. 3, when pieced together, proved to be a broad-mouthed water-bottle decorated with a kind of incised meander in a cross-hatched field (Fig. 20).

Vessel No. 4, repaired and partly restored (Fig. 21), has around the body eight incised open hands alternately pointing upward and downward. On each hand is an open eye. Part of this design is shown in diagram in Fig. 22.

Thirty inches from the surface were friable fragments of sheet-copper corroded through and through.

Many shell beads and bits of sheet-copper lay with a fragment of a tibia, about 3 feet from the surface.

A skeleton at full length, about 3 feet down, had on one side of the skull a copper ear-plug of the usual type, and on the chest the crumbling remains of what must have been a sheet-copper ornament of considerable size.

A trifle more than 3 feet from the surface was a skeleton at full length on the

FIG. 20.—Vessel No. 3. Mound C. (Height 5.4 inches.)

FIG. 21.—Vessel No. 4. Mound C. (Diameter 5.7 inches.)

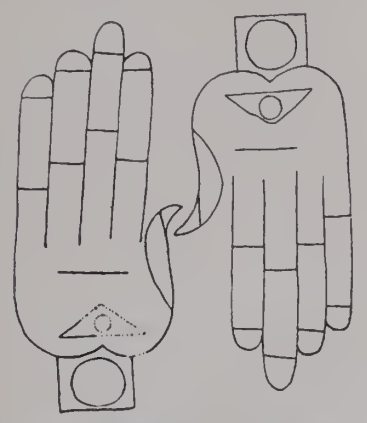


FIG. 22.—Vessel No. 4. Decoration. Mound C. (About half size.)

back, with fragments of sheet-copper at the head and a few bits on the upper part of the chest. At both knees were beads, some round, some tubular, each about half an inch in length. At each ankle, on the outer side, was a deposit of small, spherical pebbles that evidently belonged to rattles. A small quantity of mica lay near one knee.

A skeleton at full length on the back, at about the same depth as the last, had near the head a drill-point wrought from a jasper pebble, and a disc of metamorphic gneiss (Fig. 23), 7.8 inches in diameter, with an oblong slab of sedimentary rock, 4.75 inches broad by 5.75 inches long, beside it (Fig. 24).

FIG. 23.—Stone disc. Mound C. (Diameter 7.8 inches.)

Resting on these two was another disc of metamorphic gneiss, of the same diameter as the other. The whole deposit was covered with decayed wood. The discs, somewhat crushed, have been repaired. On each are traces of pigment. Neither on these discs and slabs nor on any others found by us at Moundville was there incised decoration on both sides; and on neither side had an attempt been made to represent figures.

FIG. 24.—Stone slab. Mound C.
(Length 5.75 inches.)

FIG. 25.—Vessel No. 6. Mound C.
(Height 6.75 inches.)

Another skeleton at full length on the back lay at the same depth, with no artifacts in association; and not far distant, at a somewhat lower level, was still another burial of the same kind. Near the skull of the latter were fragments of of what seemingly had been a flat, tapering blade of sheet-copper, with the point and certain other parts remaining; also bits of corroded sheet-copper belonging to one or more ornaments, with fragments of matting. Nearby was a thin, even, oblong layer, of small, spherical pebbles, covering a space 8 by 10 inches in extent, enclosed above and below in a black substance decayed beyond recognition. With these pebbles, was a diminutive disc of earthenware or soft clay-stone, having a circular marking in the center on one side.

At 52 and 56 inches from the surface, respectively, were a bunch of loosely-spread bones, including one skull, and a skull lying alone. With the bunch was a small quantity of mica.

Vessel No. 6 lay in fragments in the wall of the excavation and presumably belonged to human remains that had been removed. Pieced together, the vessel proved to be a truncated cone in shape (Fig. 25).

FIG. 26.—Ceremonial axe of stone. Mound C. (Length 6.5 inches.)

When the great excavation, in the northeastern part of which lay the burials and relics we have just described, had reached a depth of 6.5 feet, a change in the material of which the mound was composed was noted, the upper part having been brown and red-brown clay with an admixture of sand and organic matter here and there. While there had been more or less stratification in places in the upper part, the material in the main was homogeneous. Below this level of 6.5 feet from the surface, the mound was more stratified, and the clay contained much less sand and was of various shades of gray. It became evident that we had reached a level which, at an earlier period, had been part of a summit plateau of the mound. Confirming this view, various pits were discovered, each extending from this lower level several feet down into the mound. In two of these pits were human remains. In one, 4.5 feet below this lower, or original plateau, were crowns of teeth and a line of bones in the last stage of decay. In another pit, 5 feet across and 34 inches down from this former summit plateau, teeth and a line of decayed bones again were present. A number of similar pits were noted by us, but either the bones had entirely disappeared through decay or the fragments were so small that they were thrown back before the presence of the pit was discovered. One pit, with a layer of decayed bark along its base, was disturbed by our men while we were absent from that part of the mound. In this instance bones may have been present, but if so their fragments were too minute to attract attention in the dirt thrown out.

In the clay taken from the excavation at a depth of about 8.5 feet from the second, or present, summit plateau of the mound, or 2 feet below the lower level, was an imitation in wood copper-coated, of a canine of a large carnivore, with a perforation at one end for suspension. This ornament, 2.75 inches in length, had been wrapped in matting, some of which remained.

At a depth of 9.5 feet from the upper level, or 3 feet below the lower one, where certain pits were, was an interesting ceremonial axe of plutonic rock, with flaring edge, about 6.5 inches in length (Fig. 26). This axe, which much resembles one found by us in the famous mound at Mt. Royal, Florida, had red oxide of iron adhering to it at one place. About 2 inches of the upper part, away from the blade, where the handle had been, was not polished like the rest of the implement, being finished more or less in the rough.

Perhaps a recapitulation of the results of this excavation may not be out of place.

We have here a mound 15.5 feet high at the central part, which originally had a height of but 9 feet. It was occupied for a period while at the latter level, and burials were made in pits dug from its surface. Later, the height of the mound was increased by 6.5 feet, and the summit plateau of this enlarged mound was again used locally as a place for burials.

FIG. 27.—Ceremonial axe of copper, with part of handle in place. Mound C. (Full size.)

It was evident to us that the mound had undergone but two stages of occupancy, as there were no change in the material below the lower level of which we have spoken, and no sign of a pit having a beginning lower than this level 9 feet above the base.

It occurred to us, as a point of interest, carefully to note the earthenware from the lower part of this mound in order to learn whether or not a difference existed between it and the earthenware found above, but as no vessels were found in the original mound, and as but two small, undecorated sherds were obtained by our men there, means for comparison were wanting.

FIG. 28.—Ceremonial axes of copper. Moundville.

Having disposed of the deep excavation, we turned our attention to the northern part of the summit plateau of the mound through which we dug to a depth of fully 5 feet. The area excavated, as before said, is given in the plan showing the great excavation.

All burials, so far as could be determined, were in pits that had been dug from the surface, though often, on account of aboriginal disturbance, the exact limits of these pits could not be traced.

Four feet below the surface, with a few, soft fragments of human bone, was a ceremonial axe of copper, 8 inches long, 3 inches across the blade, and 1.75 to 2 inches broad in other parts. Remains of a wooden handle, 2 inches in width, still adhere to the metal, showing that 1 inch of the implement projected behind the handle (Fig. 27). C. C. Jones[1] describes a somewhat similar axe from Georgia and rightly places it in the ceremonial class, calling attention to its light weight and delicate structure.

A skeleton complete down to, and including, part of the thorax had, under the chin, small fragments of a sheet-copper ornament that had been encased in matting.

Near a femur, lying alone, was a considerable number of tubular shell beads, each somewhat less than 1 inch in length.

At a depth of 16 inches from the surface were certain scattered human bones near a small pocket of fragments of calcined bone, also human, with more unburnt bones beyond.

A skull and a few bones in disorder lay together. With the skull was Vessel No. 7, in fragments, and a small cup with incised, ribbon-fold decoration, resembling in form and in design Vessel No. 21 from this mound and Vessel No. 15 from Mound O.

In the same pit, but not immediately with the bones, was a ceremonial axe of copper, to which fragments of a wooden handle still adhered. This axe, like most copper objects found in the mounds, was encased in decayed material—wood, in this instance. The length of the axe is 6.4 inches; it is 1.5 inches across the blade, and 1 inch in breadth at the opposite end. The breadth of the space covered by the handle is 1.25 inches; 1.5 inches of the axe projected behind the handle (Fig. 28 D).

In this same pit lay a skeleton at full length on the back. At each side of the skull was an ear-plug of the ordinary form, made of wood, coated with sheet-copper on the upper surface. The companion parts of these ear-plugs, which were worn behind the lobes of the ears, were not found; presumably they had been made of some perishable material. Below the chin was an ornament of sheet-copper in small fragments which, put together, form in part a gorget with scalloped margin, having three roughly circular lines surrounding a swastika defined by excised portions (Fig. 29). Near the skull were Vessels Nos. 8 and 9, both crushed to fragments. Vessel No. 8, pieced together, bears an incised design several times found by us at

[1] "Antiquities of the Southern Indians," p. 226 *et seq.*

Moundville (Fig. 30). Vessel No. 9, repaired, shows an incised meander around the body (Fig. 31).

Near a dark stain in the soil, which possibly indicated where a skeleton had disappeared through decay, was a pendant of sheet-copper, encased in decayed wood. In the upper part are excisions to form a swastika, and an excised triangle below (Fig. 32). With this pendant were small fragments of another.

FIG. 29.—Part of sheet-copper gorget. Mound C. (Full size.)

In a pit in which were other bones, apart from artifacts, was a mass of galena about the size of a child's fist, with fragments of bone. This galena, or sulphide of lead, was heavily coated with carbonate of lead, which could readily be used as paint. In the same pit, but deeper, lying near a few small bits of skull, was a disc, probably of fine-grained gneiss, 16 inches in diameter, without decoration. Nearby, above the disc, were small fragments of sheet-copper and Vessel No. 9*a*, crushed to

FIG. 30.—Vessel No. 8. Mound C. (Height 7 inches.)

FIG. 31.—Vessel No. 9. Mound C. (Height 7 inches.)

FIG. 33.—Ceremonial axe of copper. Mound C. (Length 13.75 inches.)

FIG. 32.—Pendant of sheet-copper. Mound C. (Full size.)

small fragments. With Vessel No. 9*a* was Vessel No. 10, also in fragments, which, cemented together, proved to be a small, wide-monthed water-bottle with a scroll decoration on a cross-hatch field.

Somewhat more than 4.5 feet down was a dark line in the soil, perhaps the last trace of a decayed skeleton. With it, together, were two small masses of galena, minute fragments of sheet-copper, and a neatly made discoidal stone of quartz, 2 inches in diameter.

Slightly more than a foot below the surface was a small deposit of fragments of calcined human bones, accompanied with a little charcoal and burnt clay in small masses. It appeared as if these foreign substances had been gathered up with the bones at the place of cremation.

Near a dark line, probably left by decayed bones, was a ceremonial axe of copper, 13.75 inches long, 1.9 inches across the flaring blade, and .4 inch wide at the opposite end (Fig. 33). This implement, encased in wood, as usual, has no handle remaining upon it, but it plainly shows where a handle has been, with part of the body of the axe behind it.

Scattered fragments of calcined human bones, with part of one unburnt bone among them, lay 2 feet from the surface.

Remnants of a skull and part of a long-bone lay together; with them were fragments of corroded sheet-copper.

Apparently apart from human remains was an undecorated but gracefully shaped water-bottle (Vessel No. 11), which, unfortunately, received a blow from a spade.

Four feet from the surface, with a few fragments of human bone and many tubular shell-beads, each slightly less than an inch in length, was the remainder of what presumably had been a shell drinking-cup. Pieces separated through decay lay near it. The large fragment, which had upon it parts of two engraved fighting figures, received a blow from a spade, which, however, did no material harm, inasmuch as the parts separated by the blow had lost through decay all trace of engraving. That which remains of the engraved design shows what is left of two fighting figures. Below, a figure with parts of the trunk missing, as well as the legs and the lower part of the left arm, has the right arm upraised to strike with a weapon of some kind—perhaps a war-club. In the ear of this figure is represented a large ear-plug, and ornaments, probably copper, are on the head. The second figure is represented by a leg and part of a foot. An unidentifiable object, but perhaps the handle of an axe, is between the figures (Fig. 34).

Engraved figures on shell, of the same class[1] as those from Moundville, have been found in Missouri, in Tennessee, and in Georgia, and on copper in Georgia.

[1] W. H. Holmes, "Art in Shell," Second Rep. Bur. Eth., 1880–81; also same author in Smith. Misc. Col., Vol. XLV, Quarterly issue, Vol. I, Pt. 1.
Thruston, "Antiquities of Tennessee," 2nd ed., chap. ix and supplement to chap. ix.
Thomas, in Fourth Rep. Bur. Eth., 1883–4, p. 100 *et seq.*
See also Starr, in Proc. Davenport Acad. Nat. Sci., Vol. VI, p. 173 *et seq.*
Saville, in Bul. Am. Mus. Nat. Hist., N. Y., Vol. XIII, p. 99 *et seq.*

Incidentally, it may be said that the statement made by Doctor Thomas that the famous Etowah plates show European influence, is not now accepted by competent judges.

With a lone skull was a beautiful, little bird arrow-head, of transparent quartz.

Vessel No. 12, in fragments, was found away from human remains, though in all probability bones buried with it had disappeared through decay, or perhaps the

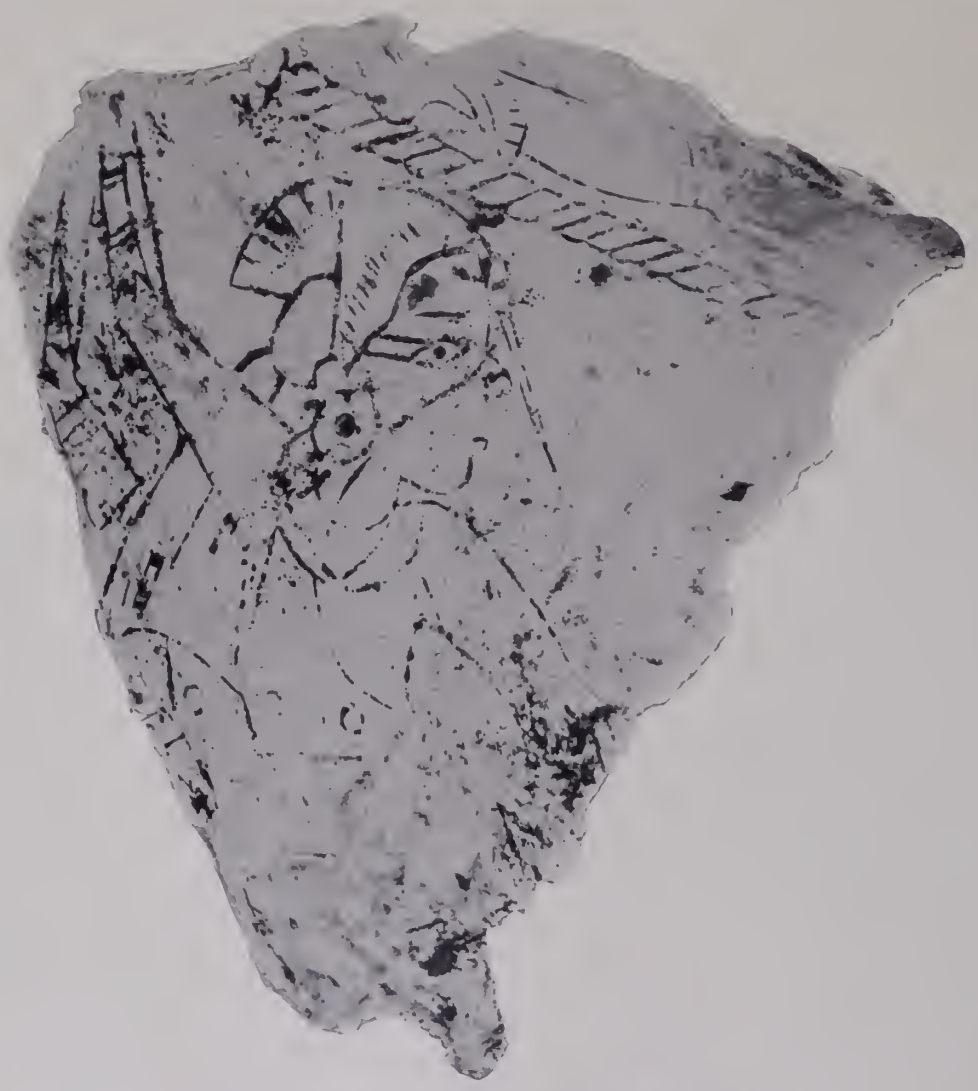


FIG. 31.—Part of engraved shell. Mound C. [Full size.]

vessel had been cast aside in an aboriginal disturbance. This vessel, pieced together, shows a series of central crosses and a cross-hatch design (Fig. 35). Nearby lay a mass of galena (lead sulphide), showing many facets as if worked down for a specific purpose (Fig. 36).

Two burials, one above the other, which had been skeletons at full length, as

FIG. 35.—Vessel No. 12. Mound C. (Height 6.25 inches.)

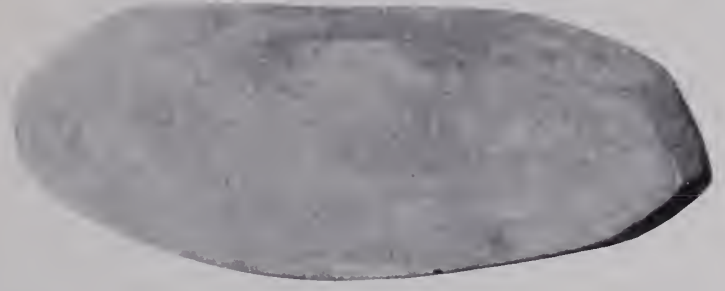


FIG. 36.—Mass of sulphide of lead showing the white carbonate used for paint. Mound C. (Full size.)

indicated by fragments of bone still remaining, had each a number of shell beads. A bit of sheet-copper lay not far away.

With an irregularly bunched burial was a small quantity of charcoal.

Vessel No. 13, a wide-mouthed water-bottle with numerous shallow depressions surrounded by incised line decoration (Fig. 37), a favorite pattern at Moundville, lay apart from any visible trace of human remains. Near where the vessel lay was an interesting fire-place that formed the base of the pit in which the vessel was found. This fire-place, having the form of a basin 11 inches deep and 40 inches in diameter, was made of clay, hardened and burnt red by fire to a thickness of 6 inches. On the bottom of the basin was a quantity of gray material mingled

FIG. 37.—Vessel No. 13. Mound C. (Height 6 inches.)

with clay; this was covered with a black substance 2.5 inches thick, possibly decayed vegetable matter. The gray material, analyzed by Dr. H. F. Keller, proved to consist "principally of carbonate of lime with admixed sea-sand. The color, a dirty brownish, is due to a hydrated oxide of manganese, of which the mixture contains a very notable amount. The brown specks are distinctly visible under the magnifying glass, and evolve chlorine from hydrochloric acid when the material is treated with this solvent."

Vessel No. 14, a broad-mouthed water-bottle, with rude, incised scroll decoration, lay in fragments, apart from human remains.

With a few fragments of bones of a child lay, one upon the other, what was left by decay and the blow of a spade, of two circular sheet-copper ornaments. In the center of each, four excised spaces form a swastika. On one of the discs are rows composed of many small pearls remaining as when strung (Fig. 38).

FIG. 38.—Gorget of sheet-copper with string of pearls. Mound C. (Full size.)

A highly-polished and beautifully made discoidal stone of brown and white conglomerate, presenting a striking appearance, lay apart from human remains.

With no bones visible nearby were Vessels No. 14a and No. 15, in fragments. Each of these is a broad-mouthed water-bottle with a decoration common at Moundville, having depressions in the body, surrounded by incised scroll-work.

Forty-five inches below the surface a great shell drinking-cup (*Fulgur perversum*), 13 inches in length, was found; and inverted over it was Vessel No. 16, a bowl with beaded margin, somewhat broken when unearthed. In the shell cup was a black substance in which was a splinter of bone, probably remains of food. We found similar material in a number of vessels at Moundville. Nearby was a well-made "celt" of volcanic stone and a wide-mouthed water-bottle (Vessel No. 17), in fragments. This vessel (Fig. 39), pieced together, bears on each side an incised meander surrounding small, shallow depressions. With this water-bottle was a coarse, brown-ware cooking vessel, with two loop-handles (Vessel No. 18).

FIG. 39.—Vessel No. 17. Mound C. (Height 5.9 inches.)

A broken shell drinking-cup, without decoration, lay apart from bones, so far as we could determine.

About 4 feet below the surface were a few human teeth, probably all that remained of an entire skeleton. Beneath the teeth, where the neck had been, was part of a pendant of much corroded sheet-copper, similar to one already illustrated (Fig. 32), as coming from this mound. At each side of the place where the head had been was an ear-plug of ordinary type, consisting of a disc of wood with sheet-copper on the outer side (Fig. 40). The parts which, placed behind

the lobes of the ears, held these ornaments in place, were not found, hence it is presumed they had been entirely of wood.

With some fragments of badly decayed bone was a ceremonial axe of copper, with part of the wooden handle still remaining upon it in fairly good condition, the wood maintaining a rounded surface. The length of this axe is 5.75 inches; width of blade, 2 inches. The blade projected .25 of an inch behind the handle (Fig. 28 F). Above this implement was a copper-coated bead of shell, somewhat broken.

FIG. 40.—Wooden ear-plugs, copper-coated. Mound C. (Full size.)

A ceremonial axe of copper fell with caved material. Length, 7.8 inches; width of blade, 3.2 inches (Fig. 28 C). In the neighborhood from which the axe fell were fragments of what had been a large breast-piece of sheet-copper. Unfortunately the badly corroded state of the metal precluded any chance of recovering this ornament save in very minute fragments.

Somewhat below scattered fragments of bone in a pit, with bits of much decayed skeletal remains, were parts of what probably had been a hair-ornament of sheet-copper, similar to one to be described in connection with Burial No. 37 in this mound. With the fragments of this ornament was what Prof. F. A. Lucas kindly has identified as a strip of bison-horn. This material readily could have taken the place of a pin of bone. A similar strip of bison-horn lay with the hair-ornament near Burial No. 37.

Near the ceremonial axe and the breast-piece, but not with them, occurred a dark line in the soil, probably all that remained of a human skeleton. On this line was a ceremonial axe of copper, about 9.6 inches long and 2.25 inches across the flaring blade (Fig. 28 B). On the cutting edge is a series of nicks, or tally-marks, similar to those so often found on ceremonial objects. If farther proof were needed to assign these copper axes to the ceremonial class, these notches along the edge of the blade certainly would supply the deficiency.

Vessels Nos. 19 and 20, small, undecorated, broad-mouthed water-bottles, lay together, with no bones remaining in association.

A small deposit of fragments of calcined human bone lay 18 inches from the surface.

We now come to Burial No. 37, a most noteworthy one. Forty inches below the surface was a dark line, doubtless marking the former presence of a skeleton. Near the eastern extremity of this line were a few human teeth and part of a lower jaw. Assuming that this black line was almost the last trace of a skeleton that once lay at full length on its back, heading eastward (an assumption borne out by the position of the jaw and by finding the lower ends of the tibiæ and fibulæ at a

proper distance therefrom), we can say with reasonable accuracy where the objects found with this burial had been placed originally.

Forty-five globular beads of wood, copper-coated, each about 1.1 inch in diameter were around the ankles, the bones of which were preserved by the presence of the copper. With these beads were a few perforated pearls, the size of a pea and smaller.

Across the knees was a ceremonial axe of copper, about 11.5 inches in length and 1.9 inches across the flaring blade (Fig. 28 A).

At each wrist were sixteen copper-coated beads similar to the others.

At the lower part of the chest, the broad end with two perforations for suspension being toward the head, was a pendant of sheet-copper, about 6.75 inches in length, with excised parts forming a swastika and having a triangle cut out from the copper below (Fig. 41).

Fig. 41.—Pendant of sheet-copper. Mound C. (Full size.)

On the chest, below the chin, were two gorgets of sheet-copper, one lying on the other. The larger (Fig. 42), roughly circular, was uppermost. The smaller (Fig. 43), an eight-pointed star within a circle, still has cord in two perforations made for suspension. Below the chin was a number of small perforated pearls, badly decayed; and parts of several strings of pearls adhered to the larger gorget.

Under the head was a curious object of copper (Fig. 44), doubtless a hair-ornament, 14.5 inches in length, flat, pointed at each end, with a maximum width of .6 of an inch.

At the left side of the head was a curious hook-shaped ornament (Fig. 45), with a strip of bison-horn, which, presumably, had taken the place of a pin of bone. This hair-ornament is similar to one found with another burial in Mound C.

But the gem of the objects worn by this important personage who, perhaps, at

FIG. 42.—Gorget of sheet-copper. Mound C (Full size.)

one time owned the great mound wherein he now figures as Burial No. 37, is an effigy of a human head (Fig. 46), which lay with the gorgets on the chest and, possibly, formed a center-piece to the annular one. This interesting little gem, carved from amethyst and perforated behind for attachment, is shown in four positions in Fig. 47.

Aboriginal work in amethyst is uncommon. We found a beautifully made pendant of amethystine quartz in the rich mound at Crystal river, Florida; and investigation under supervision of Mr. Warren K. Moorehead resulted in the discovery of a pendant of amethyst, somewhat more rudely made than ours, in southern Indiana.

Mr. George F. Kunz, who is so familiar with gems and hard stones, writes of this amethyst head: "The drilling was undoubtedly done by no other agents than quartz, either with a stick or a hollow reed; and the sawings by drawing a string or a thong across the object, using sand as an abrasive, possibly wet. The

FIG. 43.—Gorget of sheet-copper. Mound C. (Full size.)

FIG. 44.—Hair-ornament of copper. Mound C. (One-third size.)

FIG. 46.—Amethyst head. Mound C. (Full size.)

FIG. 45.—Hair-ornament of sheet-copper. Mound C. (Full size.)

grooving and notching were apparently done partly with a narrow bit of hard mineral, or by means of sticks, the parties using sand again as an abrasive, which was pushed or rubbed into the spot to be worked upon."

This ends the list of objects found with Burial No. 37, with the exception of a black material in the soil nearby, which was submitted for analysis to Dr. H. F. Keller who writes: "The material you sent me yesterday is a typical specimen of mineral pitch. It gives all the characteristic reactions of asphaltum, and contains 2.65 per cent. of mineral matter."

Asphalt is found in Alabama.[1]

Vessel No. 21, a cup in fragments, since put together, has incised decoration showing the ribbon-fold design (Fig. 48).

But one burial in the mound was found at a depth of 5 feet, although a number were 4.5 feet and 4 feet from the surface. In addition to burials particularly described, eight bunches or aboriginal disturbances were met with, having no artifacts in association. There were present in the mound, away from human remains, fragments of sheet-copper in two places and one bird-arrowpoint of quartz.

With a full-length burial the number of which is not given in our field notes, were two shells (*Tulotoma magnifica*). We are indebted to Dr. H. A. Pilsbry and to Mr. E. G. Vanatta, of the Academy of Natural Sciences, for all determinations of shells given in this report and in the three other reports in this volume.

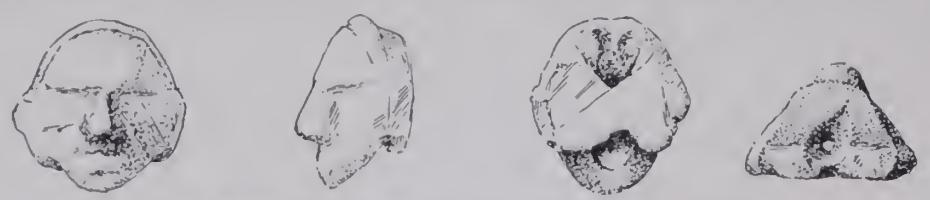


FIG. 47.—Amethyst effigy of head. Four positions. Mound C. (Full size.)

FIG. 48.—Vessel No. 21, Mound C. Diameter of body 3⅛ inches.

[1] "Asphaltum in 1893." U. S. Geological Survey. Extract from "Mineral Resources of the United States, Calendar Year, 1893." Washington, 1894.

Ground Northeast of Mound C.

Directly northeast of Mound C is a plot of wooded ground having the mound as a base, a deep gully on one side, and the river bluff on the other.

A certain amount of digging was done in this ground, first near the end farthest from the mound, and afterward not far from the base of Mound C, resulting in the discovery of thirty burials of the same general form as those we have minutely described in the account of Mound C.

The artifacts found with these burials seemed to indicate that their former owners had belonged to a class less prosperous than was represented by remains found by us in other places of burial at Moundville. No copper was met with, and in many cases cooking pots of coarse ware were used as burial accompaniments. Where vessels of other forms were found they were undecorated as a rule, and when decoration was present it was often of inferior execution.

Fig. 49.—Vessel No. 1. Ground NE. of Mound C. (Diameter 4.8 inches.)

Fig. 50.—Vessel No. 3. Ground NE. of Mound C. (Diameter 6 inches.)

A skeleton flexed on the right side had mica, and shell beads at each wrist.

The skulls of two infants lay together without the other bones, which, owing to their extremely delicate condition, may have been thrown back unobserved by our diggers. Near these skulls were two small pots, Vessels Nos. 1 and 2, of coarse, unblackened ware, both having loop-handles.—Vessel No. 1 having had nine originally (Fig. 49).

The skeleton of a child, cut off at the pelvis by aboriginal disturbance, had near the head Vessel No. 3.—a pot of coarse, red ware, with two loop-handles (Fig. 50).

A skeleton lying at full length on the back had near the head an undecorated, broad-mouthed water-bottle (Vessel No. 4), and a large fragment of another vessel. Shell beads were at the neck, the left wrist, and at both ankles.

In a pit 1 feet below the surface, was the skeleton of an infant, extended on the back, surrounded by almost pure clay, while the soil at this place had a large

FIG. 51.—Vessel No. 6. Ground NE. of Mound C. (Diameter 7.6 inches.)

FIG. 52.—Vessel No. 9. Ground NE. of Mound C. (Height 8.1 inches.)

admixture of sand. At the head of the skeleton were two large sherds, one on the other, each carefully worked to an elliptical outline.

Vessel No. 5 lay apparently unassociated with human remains and crushed to fragments. After the parts were cemented together the vessel proved to have a broad, short handle projecting horizontally from one side. The decoration, rather coarsely done, is a variety of scroll in a field of cross-hatch.

In a pit, where a number of burials were, lay two vessels (Nos. 6 and 7) near the lower part of a skeleton, the upper part of which doubtless had been cut away in placing a burial at a lower level. Vessel No. 6, a small bowl of inferior, black

FIG. 53.—Vessel No. 9. Ground NE. of Mound C. (Height 6 inches.)

ware with incised decoration of the ribbon-fold design, had a rudely imitated head of an animal looking inward and a conventional tail at the opposite side of the bowl (Fig. 51). Vessel No. 7, a pot of coarse, black ware, had two loop-handles with two small knobs on each. In the general disturbance in this pit these pots presumably had been shifted from a position near the head of a skeleton.

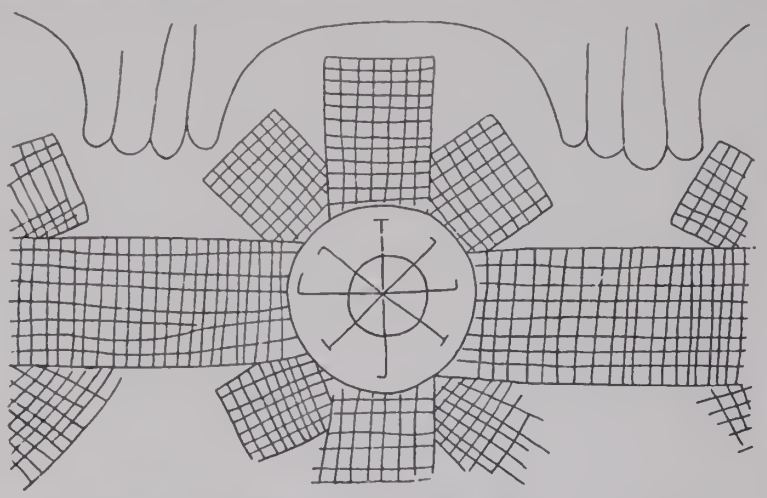


FIG. 54.—Vessel No. 9. Decoration. Ground NE. of Mound C. (About half size.)

Vessel No. 8, badly crushed, lay apart from human remains. Put together, it proved to be a beautiful jar of highly polished ware. The decoration is made up of scrolls, depressions, and incised encircling lines (Fig. 52).

Vessel No. 9 (Fig. 53), with incised design, somewhat similar to others shown before, has, in addition, a representation of fingers projecting downward, as shown in diagram in Fig. 54. The cross and cross-hatch design are shown four times on this vessel, as are the downturned fingers. This vessel lay, unconnected with any burial, in a pit where there had been much aboriginal disturbance.

FIG. 55.—Vessel No. 10. Ground NE. of Mound C. (Diameter 5.75 inches.)

Near the skull of a burial lay a pot, Vessel No. 10, of coarse, red-yellow ware, with four loop-handles (Fig. 55), and Vessel No. 11, a wide-mouthed water-bottle (Fig. 56) bearing on each of two sides an incised design consisting of a central symbol, to which is attached, at each side, the triangular tail of the woodpecker, with its pointed, individual feathers, shown diagrammatically in Fig. 57.

At the heads of two skeletons lying at full length, side by side, was Vessel No. 12, a pot of coarse,

unblackened ware with seven loop-handles, and Vessel No. 13, a small bowl with undecorated body and a rudely imitated animal head looking inward above the rim.

Beneath the skull of an infant lay a large slab of limonite.

FIG. 56.—Vessel No. 11. Ground NE. of Mound C. (Height 7.4 inches.)

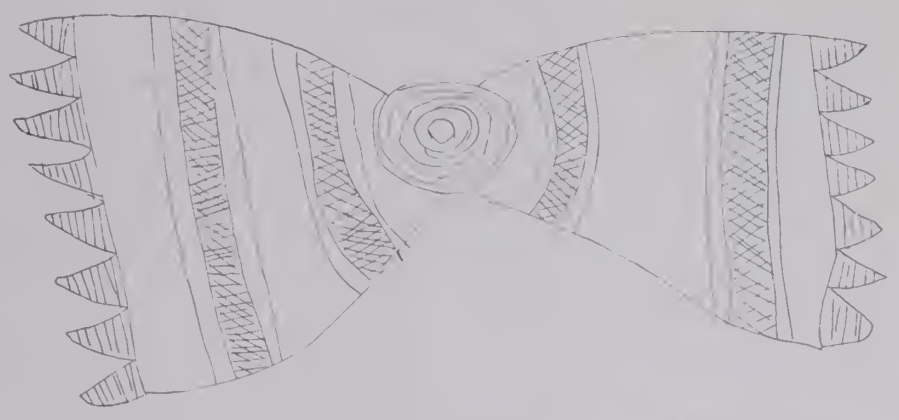


FIG. 57.—Vessel No. 11. Decoration. Ground NE. of Mound C. (About half size.)

On the chest of the skeleton of an adult, lying at full length on the back, was a gorget of shell, thickly coated with patina and with a deposit from the surrounding clay and sand. This gorget, bearing a complicated design on one side, after an unsuccessful effort on our part to clean it, was entrusted to experts who, though removing the accumulated material to a certain extent, were unable to make clear the design.

Forty-six inches below the surface lay a skeleton at full length on the back, as usual, having shell beads at the neck, and at the shoulder a slab of sedimentary rock, 9.5 inches by 14 inches by 1.1 inch thick. This slab, carefully dressed on all sides but one, where two deep grooves, front and back, show how it was separated from another portion, has for its only decoration two incised, parallel lines at each end on one side. On this slab are remains of red and of white pigment.

Vessel No. 14, a cooking pot of coarse, yellow-brown ware, lay near several cervical vertebræ in a pit where great aboriginal disturbance had taken place.

Near decaying fragments of a skull was found Vessel No. 15, an undecorated, broad-mouthed water-bottle.

Apart from human remains, singly, were several fragments of "celts;" one small disc of stone; several discs wrought from bits of pottery; slabs of stone; hammer-stones; a circular stone doubly pitted; mica in a number of places; a piercing implement of bone with the articular portion remaining; a part of a smoking-pipe of coarse earthenware, with rough incised lines on two opposite sides. It is worthy of remark how, in northwestern Florida and westward along the Gulf, as well as in the middle Mississippi district as pointed out by Holmes,[1] where pottery vessels are of such excellent ware and of such variety of form and decoration, we find pipes of the same material so inferior in ware and characterized by such uniform want of originality as to shape and ornamentation.

As we shall have occasion to refer to the finding of a number of pipes at Moundville, we may say here that we fully share Professor Holmes' belief[2] "that the pipe was in use in America on the arrival of Europeans," and the more the mounds are investigated, the more forcibly is this belief corroborated.

Mound D.

Mound D, with a summit plateau measuring approximately 60 feet by 90 feet, yielded to our trial-holes dark, disturbed soil and burials in the middle half of the eastern side and in the northern part of the western side. Therefore, we deemed it advisable to dig out the northern part of the plateau, to the depth of from 3 to 4 feet, where the loamy soil ended and more solid clay began. The area dug through by us and the parts in which burials proved to be are shown in the plan (Fig. 58). Ten trial-holes were sunk into the southern half of the mound without material result.

There were present in the soil, apart from human remains (though bones with

[1] "Aboriginal Pottery of Eastern United States," 20th An. Rep. Bur. Am. Eth., p. 83.
[2] *Op. cit.*, p. 45.

which they may have been perhaps had decayed away or may have been disturbed by other burials), the following: A small amount of sheet-copper of about the consistency of moistened bread-crust; other bits of sheet-copper; a small amount of sheet-copper in another place; a pipe of very coarse earthenware, rudely made, round in horizontal section, with flaring rim (Fig. 59); two roughly made discoidal stones and one more neatly rounded; one disc of pottery; a small, roughly made

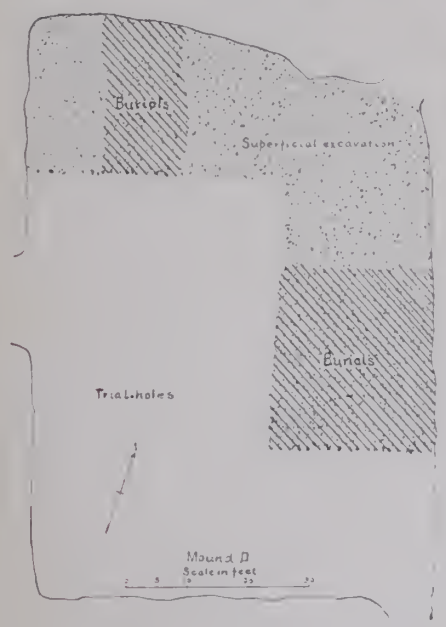


FIG. 58.—Plan of excavation. Mound D.

FIG. 59.—Pipe of earthenware. Mound D. (Full size.)

"celt"; a "celt" of greenstone or kindred rock, with cutting edge at either end, and beveled (Fig. 60); a slab of ferruginous sedimentary rock, oval in outline; and a barrel-shaped bead, probably of resin, 1.75 inches in length. Doctor Keller, who analyzed part of this bead, found it to be "a resin which, though in some respects resembling amber, is not fossilized. The interior is perfectly clear and almost colorless. The specific gravity is 1.091; it softens at about 150° C., but does not melt until heated to above 300°. It is strongly electrified by friction. Unlike amber, it is largely soluble in alcohol and other solvents. On burning it leaves very little ash, containing oxide of iron."

In addition to the usual dwelling-site debris, hones, hammers, pitted stones, etc., there were present: a small quantity of rather coarse, shell-tempered ware in fragments, one sherd having projecting from its rim the head of a frog, rudely represented; three pointed implements of bone and one less pointed, perhaps used in basketry; and a bone, kindly identified by Prof. F. A. Lucas, as having belonged to a swan.

Eighteen inches from the surface, with no human bones remaining nearby, completely inclosed in decayed wood, was a ceremonial axe of copper, 14.25 inches in length, with flaring cutting edge 1.5 inches broad, varying in breadth between .5 inch and 1 inch, with a maximum thickness of .4 inch where there is a kind of offset made by the hammering of the copper. Part of a wooden handle still adheres to the metal (Fig. 61).

FIG. 60.—"Celt." Mound D. (Full size.)

FIG. 61.—Ceremonial axe of copper. Mound D. Length 14.25 inches.)

FIG. 62.—Vessel No. 4. Mound D. (Diameter 4.75 inches.)

With the skeleton of a child, cut off below the pelvis, doubtless an aboriginal disturbance, was a mussel-shell (*Lampsilis rectus*), much worn at one end as if by use.

From 2 to 3 feet below the surface, covering a considerable area, was a deposit of bones, including eleven skulls. With this deposit, at its southern margin, were Vessels Nos. 1 and 2.—a small, undecorated water-bottle of coarse material, and a small bowl with rude, incised-line decoration below the rim, having an upright head, seemingly that of a dog, looking inward. Farther along in this deposit were three vessels (Nos. 10, 11 and 12), which will be described in their proper order.

With a burial represented by crowns of teeth alone was an ornament of badly corroded sheet-copper, and a water-bottle (Vessel No. 3), with incised decoration consisting of the open hand with the open eye upon it, six times repeated. The neck of this bottle was not recovered.

In a pit was a skeleton at full length on its back, having shell beads near the head and at one wrist. Crushed to fragments, near this skull, was Vessel No. 4, a bowl of black ware that has since been put together (Fig. 62), having upon it an engraved design representing three human skulls, one inverted, with three human hands alternating with them, two pointing downward, one upward. On each hand is the open eye (Fig. 63). An especially curious feature in respect to the skulls is that the articular part of the lower jaw, or possibly the whole ramus, is represented as projecting beyond the base of the skull. Later in this report we shall have something farther to say on this point.

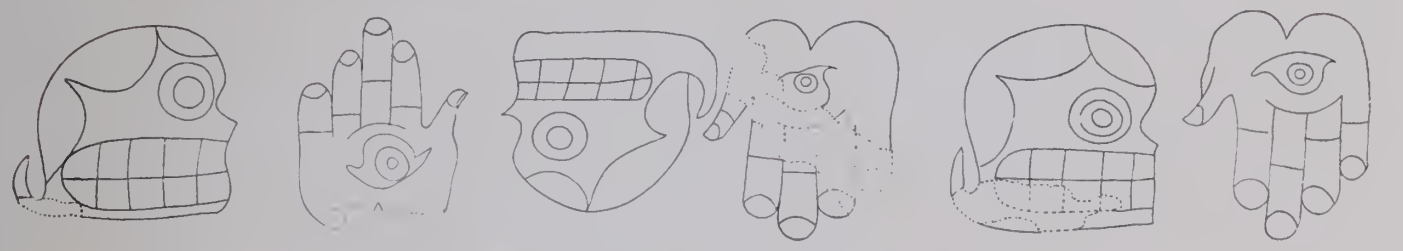


FIG. 63.—Vessel No. 4. Decoration. Mound D. (About half size.)

In the same pit was another skeleton lying at full length, face downward, having a sheet-copper ear-plug and shell beads near the skull. On a clavicle was the lower part of what was probably a sheet-copper pendant with a *repoussé* eye upon it, somewhat similar to those found in Mound H at Moundville.

About three feet from the surface was a skeleton at full length on the back, having at the legs Vessel No. 5, crushed flat. This vessel, pieced together (Fig. 64), shows an incised decoration consisting of fingers and conventionalized bodies with a tail of a bird projecting from each side. In the soil about 6 inches above the pelvis of the same skeleton was a disc of metamorphic gneiss, 10.25 inches in diameter, in an upright position, having a scalloped margin and two concentric circles incised below it on one side (Fig. 65). The customary paint was present. The position of this disc seemed to indicate that it had been thrown back after an

aboriginal disturbance and, presumably, the vessel found near the legs of the skeleton had been thrown there at the same time. At the head of the same skeleton was Vessel No. 6, crushed flat into bits, and Vessel No. 7, an undecorated bowl with inverted rim, badly broken, and containing another bowl (Vessel No. 8) with scalloped projections around the margin.

Vessel No. 6, since repaired and the missing parts restored, has for decoration, on two opposite sides, the woodpecker, with two heads, one pointing upward, the other downward, and a tail projecting from the common body at each side. No speech symbols are represented as leaving the open bill, nor is the tongue extended.

Three skeletons lay radiating from a common center represented by the skulls. Two of these skeletons lay at full length on the back; the other had the upper part of the trunk lying on the back, but was turned on the left side from the pelvis downward. The left humerus of the last skeleton showed a former break with considerable bending of the bone and development of new tissue. This specimen was sent to the Army Medical Museum at Washington.

FIG. 61.—Vessel No. 5. Mound D. (Height 5.5 inches.)

With part of a skeleton, including bones from the dorsal vertebræ downward, was Vessel No. 9, a small, undecorated pot of very coarse ware, with two loop-handles.

A skeleton at full length on the back had three shell beads of medium size at one ankle.

A rough, discoidal stone lay near the skeleton of a child, extended on the back.

The skeleton of an adolescent, in a similar position, had with it a number of fresh-water shells of the following kinds: *Obovaria circulus*, *Quadrula ebena*, *Q. stapes*, *Q. pernodosa*, *Unio congaræus*, *Obliquaria reflexa*, *Truncilla penita*.

Near the farther extremity of the large deposit of bones of which we have spoken were Vessel No. 10, a small, undecorated, wide-mouthed water-bottle;

FIG. 65.—Stone disc. Mound D. (Diameter 10.25 inches.)

Vessel No. 11, a small, undecorated bowl; and Vessel No. 12, a water-bottle, also small and undecorated.

In addition to the burials already described, there were in the mound, without artifacts:

Skeletons full length on back, one of an adolescent—8.

Skeleton at full length, face down—1.

Scattered deposits of bones—2.

Aboriginal disturbances—5.

Infant skeletons, badly decayed, two side by side—4.

There were also instances where bones had been widely scattered in pits over burials. In one case the bones of a child were mingled with the soil that filled a pit, on the bottom of which lay a skeleton.

Field North of Mound D.

A short distance north of Mound D is a cultivated field, about two acres in extent, having rising ground, artificially made, on the northern and southern extremities, and dark soil such as is found in dwelling sites. We were guided to this field (marked W on the survey) by a colored man who sold to us a disc of metamorphic gneiss, 7.25 inches in diameter (Fig. 66), which he said he had ploughed up at that place.

Two days were devoted by us to this field, with a digging force averaging sixteen men. In the southern part of the field alone were artifacts discovered, with the exception of one shell bead.

Burials ranged in depth from superficial to 4.5 feet. Those near the surface lay in the dark soil that covered the field, made up of sand, clay, and the remains of organic matter. The deeper burials were in pits extending into yellow sand in places, into yellow clay in others, which underlay the artificial soil that had accumulated during and since the use of the field as an aboriginal place of abode. Other pits present in the field, including one 6 feet deep, contained no human remains.

In the southern end of the field were:

Bunched burials—2.

Skeletons flexed on the right side—3.

Skeletons flexed on the left side—3.

Skeleton closely flexed on the left side—1.

Skeletons at full length on the back—15.

Skeleton of an infant, badly decayed—1.

Skeleton of a child, badly decayed—1.

In addition, there were recent disturbances rising from cultivation of the soil, aboriginal disturbances, and many scattered bones whose form of burial we were unable to classify.

On the surface and in the dark soil of the dwelling site were many pebbles; pebble-hammers; sandstone hones; pitted stones, triangular as a rule; and fragments of coarse earthenware, many having loop-handles. There were present, also,

drills; discs made from earthenware vessels; several bird-arrowheads of jasper and one of quartz; three rough arrowheads or knives, one of chert; and a long, slender arrowhead of jasper.

Near certain loose bones were a mass of limonite and an implement of bone decorated with notches and incised lines.

FIG. 63.—Stone disc. Field north of Mound D. (Diameter 7.25 inches.)

One of the bunched burials referred to was in reality a deposit of bones extending over a number of square feet. Near a skull in this mass of bones were two carefully made lanceheads of quartzite, one 6.25 inches, the other 8 inches, in length. With these were masses of limonite and of hematite, a small jasper arrowhead, and a thin slab of ferruginous sandstone. At another part of this deposit of bones were two lanceheads of quartzite, 7 inches and 7.5 inches in length, respectively, having notches at the base for attachment, which the other two lanceheads

did not have. With the lanceheads found last was a number of beads made by grinding down small shells (*Anculosa talniata* and *Lithasia showalterii*).

The badly decayed skeleton of a child had shell beads at the wrists and at the knees.

Another skeleton had, near the lower part of the trunk, shell ornaments, very badly decayed, made from small sections of conch, pierced at one end. At the right shoulder, where the wrist of one hand had rested, were shell beads.

With several burials were small quantities of mica.

Vessel No. 1.—A shallow basin of coarse, shell-tempered ware, undecorated save for notches around the margin (Fig. 67). This vessel lay alone near the surface, the skeleton to which it belonged presumably having been ploughed away.

Vessels Nos. 2 and 3.—A skeleton lying at full length on the back, had on the upper part of the thorax a fragment of coarse earthenware, 6 inches by 8 inches, approximately. The skull was somewhat elevated. Some inches below it was a fragment of pottery of about the same size as the other, and beneath it Vessel No. 2, a small bowl with notches around the margin. By the side of this bowl, but not covered by the pottery fragment, was a small, undecorated water-bottle, Vessel No. 3 (Fig. 68).

FIG. 67.—Vessel No. 1. Field north of Mound D. (Diameter 9.5 inches.)

FIG. 68.—Vessel No. 3. Field north of Mound D. (Height 4 inches.)

Vessel No. 4.—Two feet from a skeleton and somewhat below it, standing upright on the floor of a shallow pit, was a wide-mouthed water-bottle of black ware, having around the body a decoration of depressions and incised lines forming a scroll, a popular pattern at Moundville.

Vessel No. 5.—An undecorated water-bottle of coarse, red ware, found lying at the head of a skeleton. Under the skull was a slab of a derivative of trap-rock, irregularly oblong, 4 inches in length by 3 inches broad. At the feet were fragments of sheet-copper and two small, neatly-made discoidal stones. A femur from this skeleton, showing pathological condition, was sent to the Army Medical Museum at Washington.

FIG. 69.—Vessel No. 6. Field north of Mound D. (Diameter 8.3 inches.)

Vessel No. 6.—This vessel (Fig. 69), found lying by the skull of a skeleton, presumably represents a frog.

Vessels Nos. 7, 8, 9, 10.—Twenty-two inches from the surface was a skeleton extended on the back. Immediately at the left of the skull, which had a fragment of pottery beneath it, was Vessel No. 10, and two others (Vessels Nos. 8 and 9), were just beyond it. All these were of inferior ware, and each had two loop-handles below the rim and two small projections equidistant therefrom. Within Vessel No. 9 was a pot of coarse ware, in fragments. The photograph of this skeleton, reproduced in Fig. 70, unfortunately could not be taken in a position to show all the vessels.

FIG. 70.—Skeleton with certain accompanying vessels. Field north of Mound D.

Vessel No. 11.—This vessel, a wide-mouthed water-bottle (Fig. 71), with incised scroll design surrounding depressions, had been placed beside the skull of an extended skeleton. Beneath this vessel, but not in contact with it, was a fragment of a pot.

Vessel No. 12.—An interesting water-bottle, with handles, as shown in Fig. 72. Near this vessel was a large fragment of pottery.

FIG. 71.—Vessel No. 11. Field north of Mound D. (Height 5.8 inches.)

Vessels Nos. 13 and 14.—Vessel No. 13, a small bowl with incised decoration of the ribbon-fold pattern (Fig. 73), and Vessel No. 14 (Fig. 74), a wide-mouthed water-bottle with four incised designs, all similar (two of which are shown), lay near the remains of the skull of an infant or of an older child, from which the remainder of the skeleton, in all probability, had crumbled away.

Vessels Nos. 15 and 16.—Vessel No. 15, a small, undecorated bowl, and Vessel No. 16, a broad-mouthed water-bottle bearing a decoration consisting of the characteristic depressions surrounded by incised scrolls, lay together beside the skull of a skeleton at full length.

Vessel No. 17.—A bowl badly broken, but since put together (Fig. 75), having as decoration incised scrolls partly interlocked, lay by the shoulder of an extended skeleton.

Vessel No. 18.—This vessel, found in fragments just below the surface, has upright bands with cross-hatch decoration.

Vessel No. 19.—Into a pit, probably roughly circular, 4 feet deep and 3 feet in diameter, another pit had been dug. This second pit, 28 inches deep and 30 inches in diameter, extended 6 inches beyond the margin of the lower pit on one side. At the bottom of the upper pit was a skull, several cervical vertebræ, and one clavicle. With the clavicle were decaying fragments of a sheet-copper ornament and certain shell beads. Considerably above these bones was a bunch of parallel long-bones made up of what remained of two humeri, two femurs, two tibiæ, one patella, and one ulna. Near the skull of the lower deposit was a small, broad-mouthed water-bottle (Vessel No. 19*a*), having two holes for suspension.

Vessel No. 20.—Part of a vessel of eccentric shape, having a portion of the rim much lower than the remainder which has been scalloped. The base is flat (Fig. 76). This vessel belongs to an unfamiliar type of which more will be said in connection with Vessel No. 37, Mound O.

FIG. 72.—Vessel No. 12. Field north of Mound D. (Height 8.6 inches.)

FIG. 73.—Vessel No. 13. Field north of Mound D. (Height 4.7 inches.)

FIG. 74.—Vessel No. 14. Field north of Mound D. (Diameter 4.4 inches.)

FIG. 75.—Vessel No. 17. Field north of Mound D. (Diameter 4.4 inches.)

The head of a duck (Fig. 77), an ornament belonging to an earthenware vessel, lay alone in the soil.

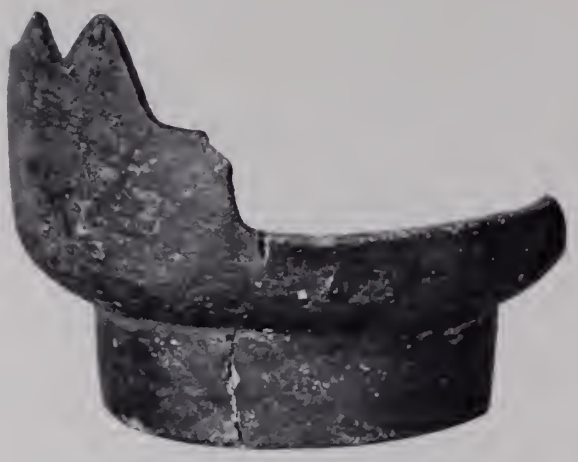


FIG. 76.—Vessel No. 20. Field north of Mound D. (Height 3.4 inches.)

FIG. 77.—Duck's head of earthenware. Field north of Mound D. (Full size.)

GROUND SOUTH OF MOUND D.

Between the cultivated field that borders Mound B on the east and the southern side of Mound D is a strip of land covered with small trees, and having a deep gully on two sides. This strip, running very nearly north and south, is about 500 feet long and varies from 75 to 140 feet in width. Nineteen trial-holes, considerably larger than those sunk by us in summit plateaus of mounds, were dug in the eastern, or higher part of this strip. These holes were about 3 feet deep except where pits were encountered, in which event they were correspondingly enlarged and deepened.

Twenty-five burials, including two skeletons together, were met with. These were similar in form to other burials found at Moundville.

All earthenware found with the dead came from two pits.

At the head of a skeleton, 20 inches down, was Vessel No. 1, a small, undecorated, wide-mouthed water-bottle; and Vessel No. 2, a handsome pot of polished, black ware, with two loop-handles, made in the effigy of a frog (Fig. 78). Elsewhere in this cemetery various fragments were met with which indicated that the concept of the frog had been a popular one during the time the burial place was in use. With the same skeleton was a small "celt" with one side smooth and the other rough, except at the cutting edge.

Vessel No. 3.—A little toy bowl, representing a tortoise, having the head and one flipper missing (Fig. 79), lay near the surface apart from human remains.

FIG. 78.—Vessel No. 2. Ground south of Mound D. (Diameter 6.75 inches.)

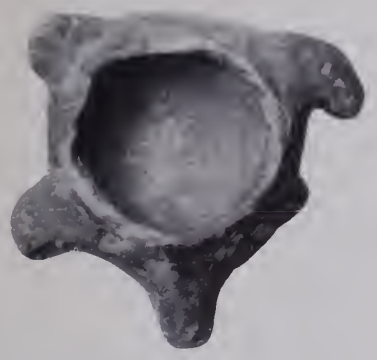


FIG. 79.—Vessel No. 3. Ground south of Mound D. (Full size.)

In the same pit as the frog effigy-vessel were a skull and certain disturbed bones. Near the skull were Vessel No. 4 (Fig. 80), a small, wide-mouthed water-bottle having the popular decoration consisting of incised scrolls surrounding depressions in the body of the vessel, and fragments of another vessel that had been broken by an aboriginal disturbance.

Still in the same pit were the skull and upper part of a skeleton, the remainder having been cut away to make room for another burial. Near the skull was Vessel No. 5, a pot of coarse, red ware, the shell-tempering showing all over it, with two loop-handles, and having below the margin a circle of projecting knobs. With this pot was Vessel No. 6, a wide-mouthed water-bottle with globular body and rounded base, an exception to the style that prevailed at Moundville, where the bases were usually flat. On part of the body of the vessel is a faintly outlined pattern where decoration has been started and abandoned (Fig. 81).

An extended skeleton lying on its back had over the face a portion of a large

FIG. 80.—Vessel No. 4. Ground south of Mound D.
(Diameter 4.4 inches.)

FIG. 81.—Vessel No. 6. Ground south of Mound D.
(Diameter 6.6 inches.)

bowl, inverted. The neck was not covered, but over the chest and abdomen to the pelvis had been placed a layer of sherds.

In another pit was a full-length skeleton on its back, having near the left side of the skull Vessel No. 7, a small, undecorated bowl, in fragments. At the right shoulder were two smoking-pipes of inferior ware (Figs. 82, 83). Near the right humerus was Vessel No. 8, a small, undecorated bowl, broken into two parts. With the bowl was Vessel No. 9 (Fig. 84), in fragments, a wide-mouthed water-bottle bearing on each of two opposite sides a design of a bird with two heads, one pointing

FIG. 82.—Pipe of earthenware. Ground south of Mound D.
(Full size.)

FIG. 83.—Pipe of earthenware. Ground south of Mound D.
(Full size.)

FIG. 84.—Vessel No. 9. Ground south of Mound D. (Height 5.2 inches.)

upward, one downward, and a circular symbol, perhaps denoting the body in common. At each side of this body is a triangular tail with pointed, individual feathers (Fig. 85). The bird, presumably, is intended to represent the heron, which still frequents the Black Warrior near the Moundville mounds. To this heron, or these herons, however, have been given tails of the woodpecker, which were a popular device in Moundville pottery decoration. Aboriginal artists were not always consistent. Another inconsistency, if the heads are intended for those of herons, is the extended tongue, this bird not using its tongue in the manner common to woodpeckers.

In the same pit, at the head of a skeleton flexed on the right side, was a broad-mouthed water-bottle, Vessel No. 10 (Fig. 86), with scroll, finger, and cross-hatch decoration; and an undecorated bowl, Vessel No. 11, with notched margin.

With the skeleton of an infant were two canine teeth of large carnivores, each perforated for suspension.

Apart from human remains was a fragment, 5 inches in length including the point, of what had been a sword or dagger, of chert.

Several discs cut from sherds of earthenware vessels were found singly.

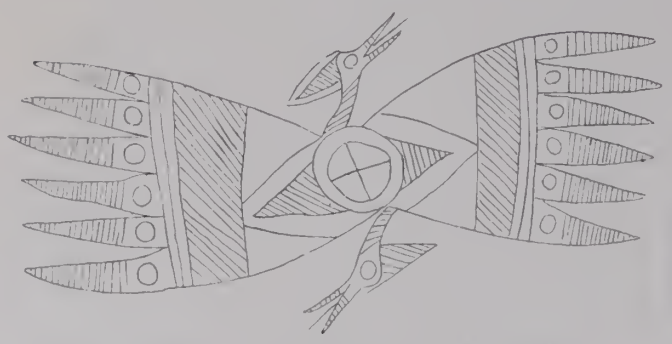


FIG. 85.—Vessel No. 9. Decoration. Ground south of Mound D. (About half size.)

FIG. 86.—Vessel No. 10. Ground south of Mound D. (Diameter 5.9 inches.)

MOUND E.

Mound E, about square as to its summit plateau, each side being about 140 feet in length, has undergone much cultivation, and there is much slant to the northwestern part of the plateau where heavy and repeated wash of rain has eaten deeply into the mound. Thirty-three trial-holes yielded no indication of burials.

MOUND F.

Mound F, seamed with gullies on every side, evidently has lost a considerable part of its summit plateau through wash of rain, after cultivation. The part of the plateau remaining is about 40 feet east and west by 70 feet north and south.

Eleven trial-holes showed the presence of burials in the northeastern part of the mound. Considerable trenching was next undertaken, extending the full length of the mound on each side. One of these trenches showed additional burials in the same part of the plateau.

Eventually a space 38 feet long by 28 feet wide, was marked out on the northern part of the plateau, and well to the eastward, excluding northern and western portions of the plateau where no indication of burial had been found. The area thus selected was completely dug through to a depth of 4 feet, and deeper when necessary in following pits.

Burials proved to be confined to a limited area along the eastern side of the plateau, in the northern part. Presumably the burial area had been greater, but had washed away with parts of the northeastern limit of the mound. The burials, nineteen in number, were very fragmentary, being in the last stage of decay, and often represented merely by a few crumbling bits.

Vessel No. 1 is a small, broad-mouthed water-bottle, undecorated, found in fragments.

Vessel No. 2, a small bowl with rough, incised decoration, lay with a disc, 6

inches in diameter, made from a portion of a pottery vessel. No bones were with these objects, though presumably they had been present.

Apart from human remains was a discoidal stone about an inch in diameter, probably of tufa, of a type of which we found a number at Moundville, and elsewhere, namely, with the base somewhat larger than the upper surface, giving the stone the appearance of a much truncated cone. Somewhat later a discoidal of amphibolite was met with, of the same type but a trifle larger. This stone had in

FIG. 57.—Vessel No. 3. Mound F. (Height 6.2 inches.)

the middle of each of its flat surfaces a hole drilled so deeply that the two nearly met. The day succeeding the finding of this stone, while digging trial-holes in a field immediately north of Mound H, we came upon a beautiful discoidal stone having, at first glance, the appearance of hematite, but being in reality limonite that had undergone change to hematite on the surface only. This discoidal, 1.5 inch in diameter, was drilled completely through. With the discoidal stone found in Mound F was a carefully rounded disc of pottery, seemingly made from a frag-

ment of a vessel, having five small perforations forming an irregular circle somewhat below the margin.

Vessel No. 3, a broad-mouthed water-bottle, lay in small fragments near the skull of an extended skeleton. The vessel, pieced together (Fig. 87), bears a series of curious symbols. The rosette figures represent the sun, according to Professor Holmes.[1] We have also, according to Professor Putnam, an arrow and the sun, possibly a winged sun. This symbol bears some resemblance to the *ollin* of the Mexicans. It would be quite in keeping to represent an arrow with the sun, the arrow representing a ray or dart of the Sun-god, and the sun representing his shield as portrayed by our Indians down to the present time.[2] The group of symbols on this vessel is shown in diagram in Fig. 88.

Vessel No. 4, a wide-mouthed water-bottle, lay apart from human remains.

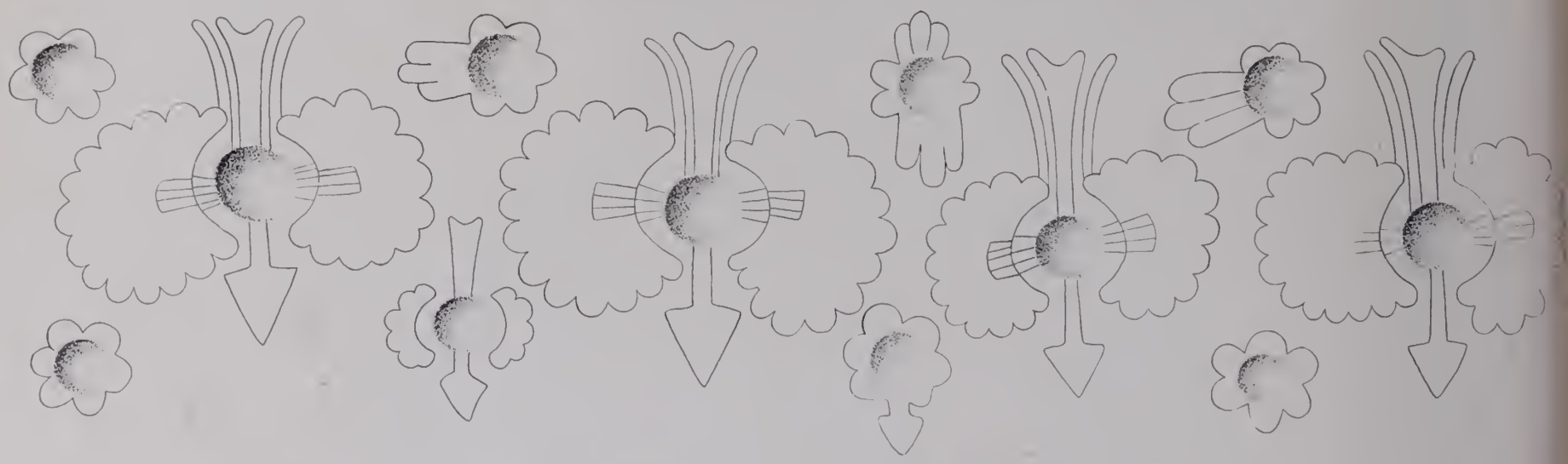


FIG. 88.—Vessel No. 3. Decoration. Mound F. About half size.

Pieced together (Fig. 89), the vessel shows four triangular tails of the woodpecker with their individual, pointed feathers, two tails pointing upward and two downward. On each tail is a swastika (Fig. 90), incomplete in two instances.

Lying apart from where burials were, was a grotesque figurine of earthenware (Fig. 91), evidently a toy, with the legs broken off at the junction with the body. There is a hump on the back. Two projections on the head probably represent copper hair-ornaments; two similar projections have been broken off.

Vessel No. 5, a small, undecorated pot with flaring rim and two loop-shaped handles, lay near fragments of a skull.

[1] *Op. cit.*, p. 91.

[2] "He took from pegs where they hung around the room and gave to each * * * a chain-lightning arrow, a sheet-lightning arrow, a sunbeam arrow, a rainbow arrow," * * *. "Navaho Legends," Washington Matthews, Memoirs of the Am. Folklore Soc., Vol. V, p. 111.

"For the orb of day is to the Navaho, only the luminous shield of the god, behind which the bearer walks or rides, invisible to those on earth." "The Night Chant, a Navaho Ceremony," Washington Matthews, Memoirs Am. Mus. Nat. Hist., N. Y., Vol. VI, p. 30.

FIG. 89.—Vessel No. 4. Mound F. (Diameter 6.5 inches.)

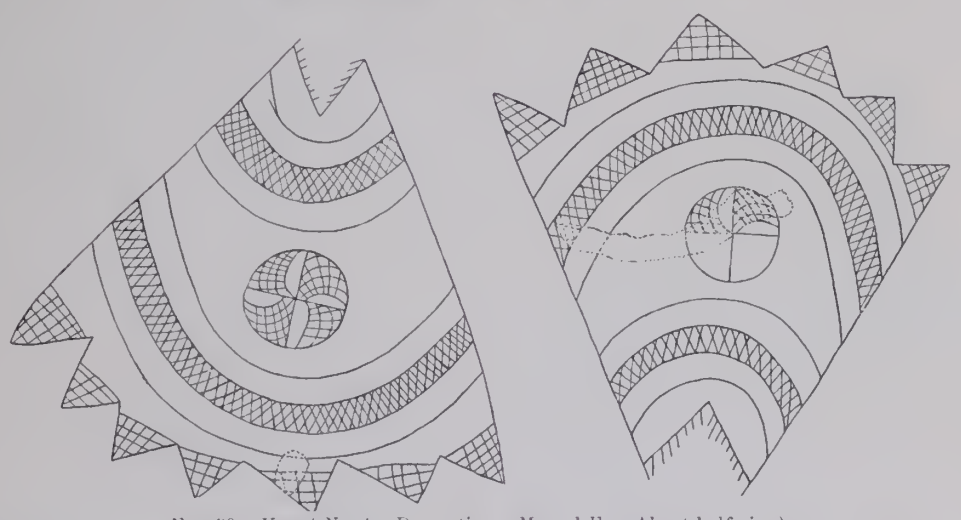


FIG. 90.—Vessel No. 4. Decoration. Mound F. (About half size.)

Vessel No. 6, a shallow bowl with scalloped margin and rudely incised interior decoration (Fig. 92), was found near what remained of a cranium.

At the head of a skeleton extended, was Vessel No. 7, crushed to fragments,

an undecorated, broad-monthed water-bottle of the coarsest ware of any vessel of that class found by us at Moundville.

In caved soil was Vessel No. 8, a small, undecorated bowl of very inferior ware.

At the right elbow of an extended skeleton was Vessel No. 9, a pot of coarse ware with loop-handles.

FIG. 91.—Part of figurine. Mound F. (About full size.)

FIG. 92.—Vessel No. 6. Mound F. (Diameter 8 inches.)

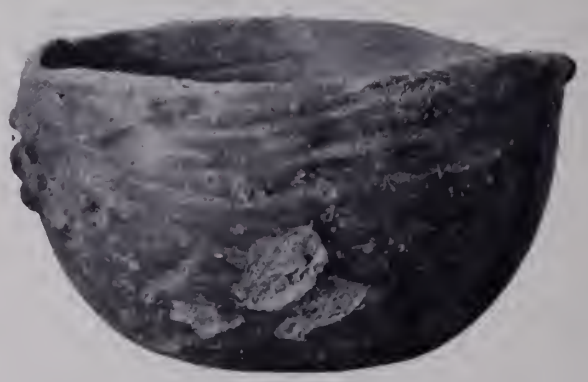


FIG. 94.—Vessel No. 12. Mound F. (Diameter 5.75 inches.)

FIG. 93.—Vessel No. 10. Mound F. (Height 6.3 inches.)

FIG. 95.—Pipe of soapstone. Mound F. (Full size.)

FIG. 96.—Vessel No. 13. Mound F. (Height 5.2 inches.)

FIG. 98.—Vessel No. 15. Mound F. (Height 4.3 inches.)

FIG. 97.—Vessel No. 14. Mound F. (Height 7 inches.)

FIG. 99.—Earthenware effigy of owl. Mound F. (Full size.)

Vessel No. 10, not identified with any burial, is a broad-mouthed water-bottle, badly broken. On each of two sides of the body of the bottle is a rude attempt to delineate the human head, now partly weathered away (Fig. 93).

Near the skull of a full-length burial was Vessel No. 11, a pot of coarse, brown ware, broken to bits; and Vessel No. 12, a bowl, somewhat crushed, with a number of small knobs in a group on one side, near the rim (Fig. 94),—perhaps a conventional shell form. We found a number of fragments of similar vessels at Moundville.

Burial No. 17, so decayed that only with difficulty could the bones be identified

as belonging to an extended skeleton, had near what was left of the skull, a beautiful pipe of soapstone, blackened and highly polished (Fig. 95). From the general appearance of this pipe and from its decoration of projecting knobs one would not refer it to the Moundville region, but consider it rather a Georgia form, though in that State similar pipes are of earthenware. C. C. Jones figures one from a mound near Macon, and we obtained one on the Georgia coast and another in a mound on the bank of the Savannah river. With the burial with which the pipe was, was Vessel No. 13, a small, undecorated, broad-mouthed water-bottle (Fig. 96).

At the head of a skeleton was Vessel No. 14, a broad-mouthed water-bottle of a well-known southern type (Fig. 97). At the knees of the same skeleton was a small, broad-mouthed water-bottle, badly broken.

A full-length skeleton had a small, undecorated water-bottle (Vessel No. 15) at the head (Fig. 98).

Apart from human remains was a curious little effigy of an owl, rather rudely made, standing on four legs (Fig. 99).

Mound G.

Mound G, the sides of which have been much washed by rain, has a summit plateau that measures about 65 feet by 80 feet. There are no signs of previous cultivation of the plateau, but an unimportant trench has been carried in from the eastern side, partly across the plateau. Twenty-five trial-holes gave no indication of pit, of burial, or of artifact.

Mound H.

Mound H, evidently a much smaller mound, originally, than its companions, has been ploughed away and dug through to such an extent that it is no longer possible to conclude as to its former height or shape. The height of the mound given in our list is perhaps misleading, including as it does a mass of flattened debris thrown out by former diggers. A small part, which had escaped former excavators, proved of considerable interest.

Fig. 100.—Vessel No. 3. Mound H. (Diameter 5.5 inches.)

Fig. 101.—Shell beads. Mound H. (Full size.)

Vessels Nos. 1 and 2, a water-bottle and a bowl, respectively, both of coarse ware, and each with rude, incised decoration, were found apart from human remains, which, probably, had been dug away. The water-bottle, which stood upright, had on its neck the bowl inverted.

Vessel No. 3, an undecorated water-bottle, found somewhat broken, has since been pieced together (Fig. 100).

Burial No. 1, an adult lying at full length, had fourteen shell beads, each .75 inch in diameter, at the ankles, and eight of about the same size at the right wrist. On the chest were 407 spool-shaped shell beads, neatly made, ranging between .4 and .6 of an inch in length (Fig. 101), and also a number badly broken. At the right shoulder and arm were 266 tubular beads of shell, ranging from 1 inch to 1.75 inch in length. With these beads were three of the kind found at the ankles, and several bits of shell, the use of which was not apparent. Under the

FIG. 102.—Gorget of copper. Mound II. (Full size.)

chin were fragments of a sheet-copper gorget which, partly pieced together, is seen to have been a six-pointed star enclosed within a circle and having a *repoussé* eye in the center (Fig. 102). With this gorget was a number of small, perforated pearls used as beads. Near the head, where the hair had been, was an ornament of sheet-copper that fell into small fragments on removal. On the other side of the head was a button-shaped object of wood, perhaps an ear-plug, about .75 inch in diameter, with an encircling groove, and copper-coated on the upper, or convex side.

Apart from human remains, and alone, was a small, circular ornament of sheet-copper, with a beaded margin and a central concavo-convex boss. A broken jasper arrowhead also lay alone.

Burial No. 2, the skeleton of a powerfully built, but not especially tall, adult male. At the right foot was a disc of fine-grained gneiss, 7.5 inches in diameter, with incised scallops around the margin and three encircling, parallel lines below (Fig. 103). On this disc was a considerable amount of red pigment. At the ankles of the skeleton were sixteen beads of shell, 1 inch and 1.25 inch in their minor and major axes. At each knee were many spool-shaped shell beads. At the right margin of the pelvis was a copper ceremonial hatchet (Fig. 28E), 5.75 inches in length

FIG. 103.—Stone disc. Mound H. (Diameter 7.5 inches.)

and 1.9 inch across the flaring blade. The part formerly occupied by the handle, with 1 inch of the implement projecting behind it, is clearly apparent. At the right wrist were seven great beads of shell and many spool-shaped beads of the same material. Near the right elbow were thirteen pendants of sheet-copper, all similar, but no two exactly alike, each in the form of an arrowhead bearing a *repoussé* eye

Fig. 105.—Hair-ornament of sheet-copper, with bone pin in place. Mound H. (Full size.)

Fig. 104.—Pendants of sheet-copper. Mound H. Full size.)

(Fig. 104). These lay with the bases together, the pointed ends spread in fan-shaped fashion as if the bases had been strung together through a perforation in each and the points had spread somewhat on the arm. At the left wrist and fore-arm were eight beads of shell, each about an inch in diameter, and a quantity of spool-shaped beads. At the neck were a number of small shell beads. At each side of the head was a wooden ear-plug, copper-coated, the part belonging behind the lobe of the ear being absent, probably through decay. At the skull was a hair-ornament of sheet-copper (Fig. 105) with a pin of bone in place in a socket riveted together to receive it. On the body of the ornament is *repoussé* work, including a delineation of the human head. The small projection at the top of the ornament is fastened on by means of a rivet. Lying on this ornament was a small circle of sheet-copper, .75 inch in diameter, enclosing a five-pointed star (Fig. 106). There is a perforation in the margin and two in the center of the ornament, in which cord remains in place.

Fig. 106.—Ornament of sheet-copper. Mound H. (Full size.)

In addition to the burials noted, we found in the remnant of the mound dug through by us one skeleton full length on the back, and an aboriginal disturbance consisting of a skull and a femur together.

A shell drinking-cup lay apart from human remains.

Mound I.

Mound I, its soil loosened by cultivation and greatly washed by rain, is a mere wreck of its former self. The area of what is left of the summit plateau is approximately 85 feet north and south by 40 feet east and west. Seventeen trial-holes in the plateau indicated that it had not been used for burial purposes.

Mound J.

Mound J, somewhat affected by wash, has a shallow and narrow trench following its slope upward on the southern side and continuing part way through the plateau. The sides of the plateau are irregular in length, measuring about 80 feet east and west by 30 feet north and south. Nineteen trial-holes yielded in one instance a few fragments of human bone just below the surface.

Mound K.

Mound K, largely washed away, has what is left of a summit plateau now 60 feet long by 20 feet broad. An unimportant trench had been dug in from the northern side, expanding considerably in the central part of the plateau. Nine trial-holes were sunk by us, one of which, on the eastern side, came upon half of a large slab of sedimentary rock, with a scalloped margin at the unbroken end, and having a quantity of red paint on one side and red and cream-colored paint on the other. With this fragment was part of a coarse vessel of yellow-brown ware, square in horizontal section, with rude, incised decoration.

Encouraged by this discovery, two more trial-holes were made and a trench was dug, 22 feet 6 inches long by 6 feet broad, 4 feet deep on the summit plateau, and 3 feet deep on the slope, over a part of which it extended. With the exception of a rough ball of earthenware, about 2 inches in diameter, no objects were found.

As the summit plateau had been thoroughly covered by us, the investigation was abandoned with the conviction on our part that while burials had been present, doubtless in the eastern part of the original plateau, they had washed away with the mound, leaving the artifacts found by us, which were near the eastern edge.

Mound L.

Mound L, the sides of which almost exactly coincide with the cardinal points, is bounded on the north and west by a cultivated field, and on the south and east by an artificial pool of water that marks the place whence material for the mound was taken. The summit plateau, which has been under cultivation, is 93 feet long E. and W., and 80 feet broad N. and S., approximately.

The height of the mound is 12 feet 9 inches from the north: from the west, 13 feet 4 inches; from the south, 14 feet 10 inches.

Twenty-five trial-holes, covering the entire plateau, were sunk by us with only negative result.

Next, an excavation 18 feet square, having for its center the central part of the summit plateau, was carried to a depth of 14 feet 10 inches, at which level the excavation was about 13 feet 6 inches by 12 feet 4 inches. The mound showed no distinct stratification. No pits were met, and no sign of dual occupancy; the only artifacts found were several small bits of pottery.

As the base of our excavation, however, still seemed to be composed of disturbed clay, a circular hole 4 feet in diameter was made, which, at a depth of 1 foot 10 inches, came upon homogeneous material, clayey sand of lead color, which extended downward to an unascertained depth. Here we have a domiciliary mound, similar, we believe, to the majority of such mounds, that is, one not put to secondary use as a place of burial.

Mound M.

Mound M. is simply the remnant of what has been a small domiciliary mound, now partly washed away. The dimensions of what remains of its summit plateau are 36 feet by 22 feet. Thirteen trial-holes were without material result.

Mound N.

Mound N, fairly symmetrical, has a summit plateau, about 65 feet square, which has been under cultivation. Twenty-nine trial-holes, without discovery of any sort, convinced us that this mound had not been used for burial purposes.

Mound O.

Mound O, a symmetrical, little mound but slightly affected by wash of rain, and previous to our visit, a stranger to the plough, had been trenched from the

eastern side to beyond the center of the summit plateau. This trench, 8 feet wide at the top, expanded at the end to a circular hole about 13 feet in diameter. Both trench and hole were comparatively shallow, the depth being perhaps from 3 to 4 feet.

The mound, 11 feet 9 inches high from the east and 16 feet 7 inches high from the south, has its longer sides extending almost due north and south. The plateau is about 33 feet by 53 feet in extent.

Nine trial-holes almost at once resulted in the discovery of human remains in two places, and of artifacts in the extreme northeastern part of the mound at a considerable distance from these burials.

As the plateau seemed to have been extensively used for burial, it was completely dug through by us to a minimum depth of from 4 to 5 feet.

Burial No. 1.—This burial lay beneath artifacts discovered by means of one of our trial-holes. Nine inches from the surface was a disc of sedimentary rock, 12.5 inches in diameter (Fig. 107). Around its upper surface, which is somewhat con-

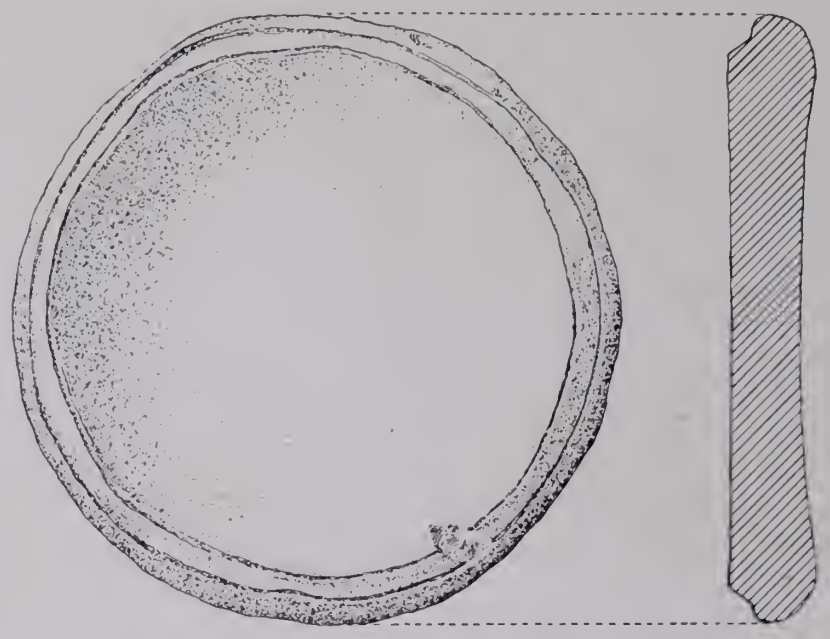


FIG. 107.—Stone disc. Mound O. (One-quarter size.)

cave, are two parallel, encircling lines, rather roughly incised. From the lower surface projects a circular core, the diameter of which is about 2 inches less than that of the upper part.

Nine inches below the slab, was a skull, with a left clavicle, a left humerus, and a few cervical vertebræ. The skull rested on part of the upper surface of a disc of fine-grained gneiss, 9 inches in diameter, having nineteen notches on the margin and two encircling, incised lines on one side. On one surface of the disc are traces of cream-colored paint; on the other surface is much red pigment. Resting on the disc, near the skull, lay an ear-plug of wood, copper-coated, 1.5 inch in

diameter, with a central boss perforated through the middle. In soil thrown out by the digger was found a somewhat smaller disc of wood, overlaid with copper on one side and having a similar central perforated boss. This disc probably formed the part of the ear-plug referred to as being behind the lobe of the ear, while the larger one was worn in front.

Where the left shoulder of the skeleton would have been were two other discs, similar to those just described. These discs, however, were on the same side of the head as the one first found, and therefore, presumably, had undergone disturbance in burial.

A skeleton at full length on the back had on the chest a mass of glauconite, or green earth.

Another skeleton, also extended, had near the skull Vessel No. 1, a small, undecorated bowl.

Vessel No. 2, a bowl of very inferior ware, lay apart from human remains.

Four feet down was a small quantity of decaying, fibrous wood. The former presence of copper with it was shown by a green stain only.

FIG. 108.—Vessel No. 3. Mound O. (Diameter 5.8 inches.)

FIG. 109.—Vessel No. 5. Mound O. (Height 5.75 inches.)

A skeleton at full length to the hips, the rest having been removed by an aboriginal disturbance, had at the skull, Vessel No. 3, a bowl with a rude effigy of an animal-head, and a conventional tail on the opposite side. A fore-leg is indicated on one side of the bowl and a corresponding member doubtless was on the other side; this was missing, but has been restored (Fig. 108). With Vessel No. 3 was Vessel No. 4, an undecorated, wide-mouthed water-bottle in fragments.

An extended skeleton had large shell beads at each wrist, with a few smaller ones intermingled. At the ankles were fifteen great beads of shell, about 2 inches by 1.75 inch by .75 of an inch. Below the chin were a few pearls used as beads, and fragments of sheet-copper. There were also copper-coated objects of wood, resembling ear-plugs, less than an inch in diameter.

FIG. 110.—Stone slab. Mound O. (Length 14 inches.)

Shell beads, badly decayed, were with disturbed bones, as was also a fragment, 4.75 inches in length, of what had been a long, pointed implement of cherty material.

About a foot from a skeleton at full length was a broad-mouthed water-bottle, Vessel No. 5, with parallel, vertical bands alternately cross-hatched (Fig. 109).

With a few fragments of bones were nine large shell beads.

Burial No. 14, 38 inches from the surface, was represented by a single tooth.

FIG. 111.—Stone disc. Mound O. (Diameter 8.5 inches.)

so far as we could determine. Nearby was a slab of fine-grained gneiss (Fig. 110), 14 inches by 9.5 inches, with scalloped ends and incised line decoration on one side. On one major surface of this slab is red pigment, and cream-colored paint is on the other. With the slab was a disc of fine-grained gneiss, 8.5 inches in diameter (Fig. 111), with notches around the margin, and three encircling lines and faint traces of a kind of meander on one side only. As in the case of the slab, the disc has red paint on one side and white paint on the other. Nearby lay a shell gorget, hope-

FIG. 112.—Vessel No. 6. Mound O. (Height 6.75 inches.)

lessly decayed. With this burial was Vessel No. 6, having on two sides the double-headed woodpecker design with a tail extending from each side of the body. The speech symbols are present, but not the extended tongue (Fig. 112). In addition, three fingers are shown near the head of the bird, at each side (Fig. 113).

A copper-coated ear-plug and fragments of sheet-copper were found apart from

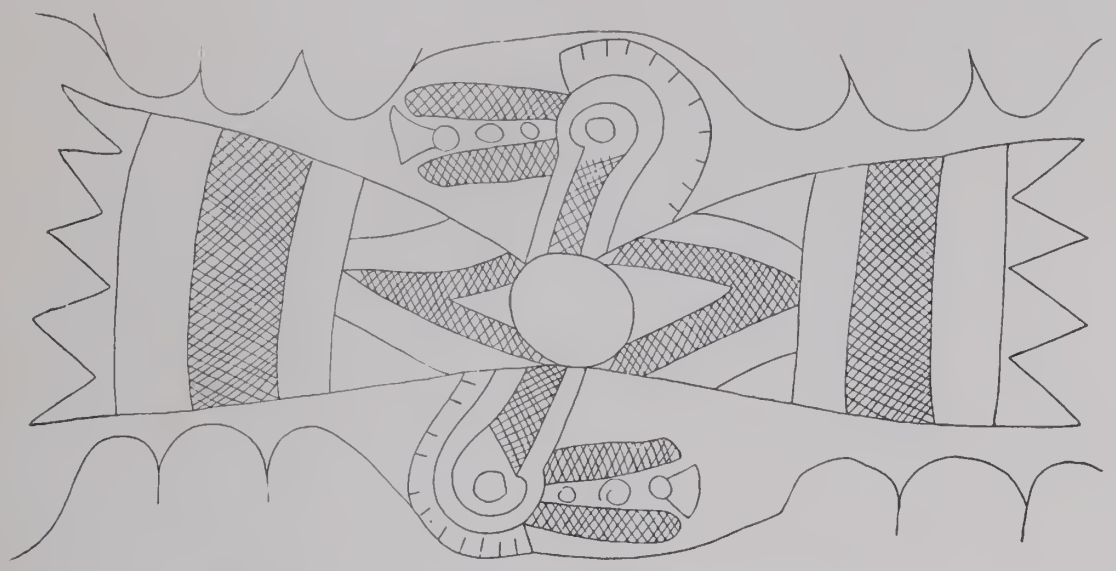


FIG. 113.—Vessel No. 6. Decoration. Mound O. (About half size.)

FIG. 114.—Vessel No. 9. Mound O. (Height 5.9 inches.)

human bones. Elsewhere in the mound a green stain alone denoted the former presence of copper.

With a bunch of bones, perhaps an aboriginal disturbance, was a cylindrical fragment of wood that had been copper-coated.

Vessel No. 7, a small, rude, undecorated bowl, and Vessel No. 8, a rude bowl of inferior ware, were together, with fragments of a wooden ornament, copper-coated, apart from human remains.

About 39 inches from the surface was Burial No. 19. By the order in which they lay, small fragments of bone here and there indicated a full-length burial.

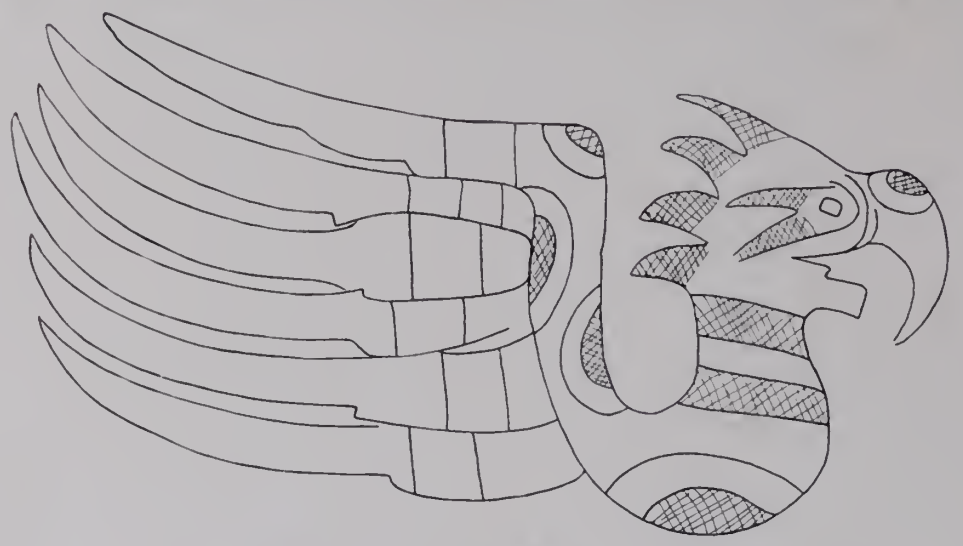


FIG. 115.—Vessel No. 9. Decoration. Mound O. (About half size.)

Near the skull was Vessel No. 9, a wide-mouthed water-bottle showing an engraved eagle on each side (Fig. 114). The two designs, though similar in the main, vary somewhat in detail, especially as to the eye. In the accompanying diagram (Fig. 115), is shown the eagle from the side opposite the one in the half-tone reproduction. Holmes[1] shows engraved eagles, one on a vessel from Mississippi, the other on a water-bottle found by us in northwestern Florida. With the striking water-bottle in Mound O was a disc of fine-grained gneiss, 8.5 inches in diameter, having the customary notches and line decoration (Fig. 116), with paint of three shades,—white, cream-color, and pink—on one side, and red pigment on the other. Placed centrally on this disc was another disc, undecorated, also of fine-grained gneiss, 5.4 inches in diameter, showing considerable pigment.

With a burial of scattered bones, perhaps an aboriginal disturbance, near the skull, was Vessel No. 10, in fragments. Cemented together, the vessel shows the design of the woodpecker on each of two sides, with speech symbols and extended tongue, but with a variation in the tails where the individual feathers are not represented as pointed (Fig. 117). Probably, for the purpose of gaining space, the lower head has been made smaller than the upper one, as shown in diagram in Fig.

[1] *Op. cit.*, Pl. LI (fig. e), and Pl. LXIX.

FIG. 116.—Stone disc. Mound O. (Diameter about 8.5 inches.)

118. With Vessel No. 10 was Vessel No. 11, a wide-mouthed water-bottle in fragments.

Near an isolated skull were Vessels Nos. 12 and 13, respectively a small pot with loop-handles and a rude bowl in fragments, having incised line decoration under the rim.

Lying apart from human bones, which perhaps had decayed away or had been disturbed in aboriginal times, were the outer half of an ear-plug of wood, copper-

FIG. 117.—Vessel No. 10. Mound O. (Height 6.25 inches.)

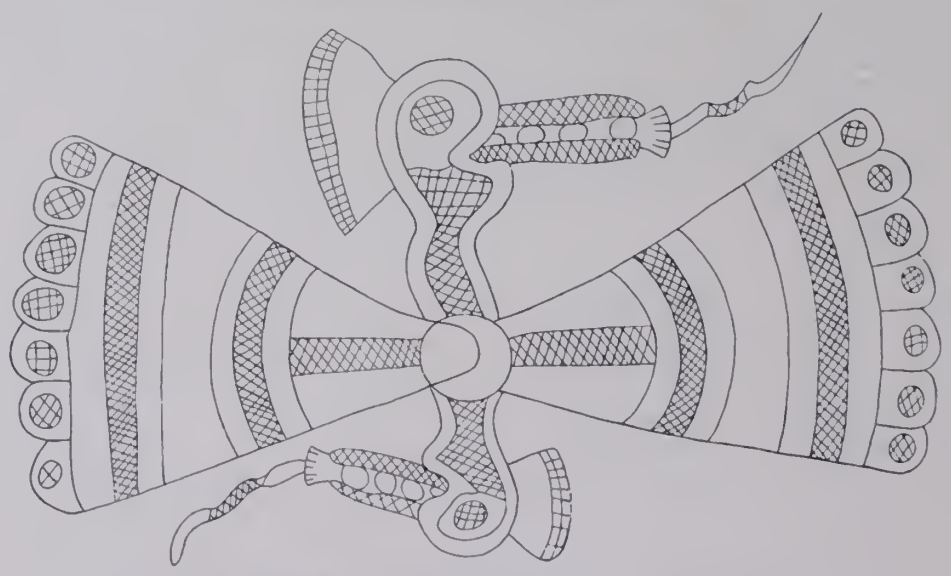


FIG. 118.—Vessel No. 10. Decoration. Mound O. (About half size.)

coated; Vessel No. 14 (Fig. 119), a broad-mouthed water-bottle, having for decoration depressions surrounded by scrolls; and Vessel No. 15 (Fig. 120), a cup with incised ribbon-fold decoration, which was found inverted on the neck of the water-bottle.

FIG. 119.—Vessel No. 14. Mound O. (Diameter 5.4 inches.)

FIG. 120.—Vessel No. 15. Mound O. (Diameter of body 4 inches.)

FIG. 121.—Vessel No. 16. Mound O. (Height 5.5 inches.)

Vessel No. 16 is a broad-mouthed water-bottle, found in fragments which, put together (Fig. 121), present a design shown in diagram in Fig. 122.

A burial represented by a few teeth had with it Vessels Nos. 17, 18, 19. Vessel No. 17, of inferior ware, lay in fragments. Vessel No. 18 (Fig. 123), a wide-mouthed water-bottle, has a decoration consisting of down-turned hands alternating with open eyes. On each hand is a symbol, perhaps a conventionalized eye.

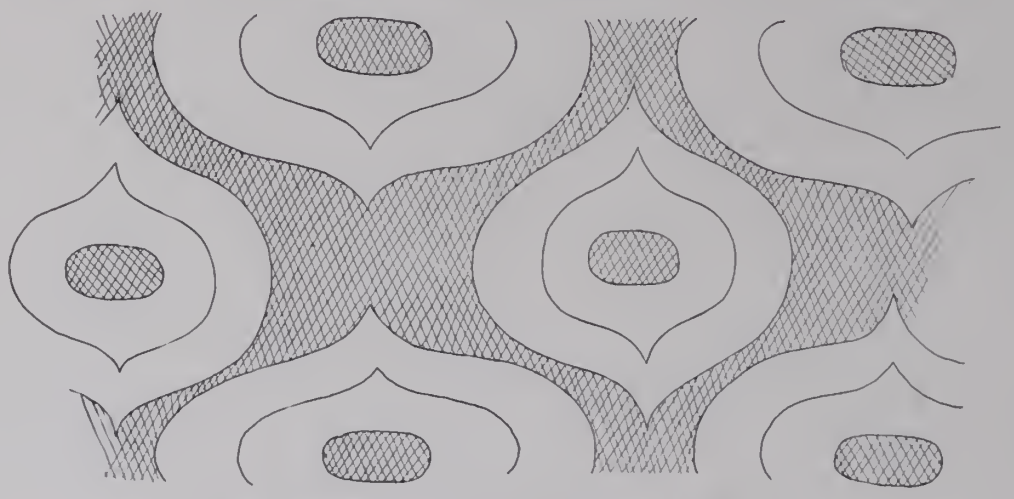


FIG. 122.—Vessel No. 16. Decoration. Mound O. (About half size.)

FIG. 123.—Vessel No. 18. Mound O. (Height 6.75 inches.)

FIG. 124.—Vessel No. 19. Mound O. (Diameter of bowl 4 inches.)

Vessel No. 19 (Fig. 124), a cup with a meander decoration, was found partly filled with a mass of material which analysis by Dr. H. F. Keller showed to be glauconite, or green earth, the green color being derived from the presence of iron in the ferrous state. This earth might have been, and doubtless was, used as a temporary paint. The color, however, would soon darken through oxidation when

FIG. 125.—Vessel No. 20. Mound O. (Height 5.2 inches.)

exposed to the air. On the glauconite within the cup was a mussel-shell containing red pigment. With these vessels was a slab of stone, undressed as to its sides, having a certain concavity of each broad surface, on one of which was red paint.

Vessel No. 20 (Fig. 125) lay in fragments in a pit near bones, but was not attributable to any burial in particular. The design, similar to

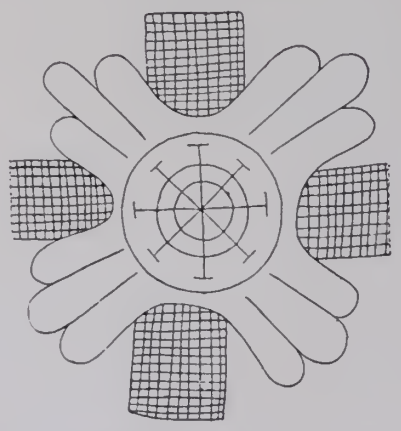


FIG. 126.—Vessel No. 20. Decoration. Mound O. (About half size.)

several found at Moundville, but not noted elsewhere, so far as we know, consists of the sign of the four quarters represented by series of three digits pointing in the four directions. Centrally are series of concentric crosses and circles. Between each series of digits is cross-hatch, as shown in diagram in Fig. 126.

Vessel No. 21, a small, undecorated, wide-mouthed water-bottle, lay inverted in a pit where, seemingly, it had been tossed in a disturbance in aboriginal times. This vessel bears a perforation in the base, presumably the result of accident at its first disinterment.

Near a disturbed burial was a disc of fine-grained gneiss, 7 inches in diameter, having the usual decoration, with traces of white paint on one side and red on the other.

FIG. 127.—Ceremonial weapon of chert. Mound O. (Full size.)

Near the surface of a pit containing several burials at greater depth, was a ceremonial weapon of cherty material, shown in Fig. 127.

Vessels Nos. 23, 24, and 25, are all undecorated bowls found in fragments, away from human remains.

Vessel No. 26, with only a fragment of decaying bone nearby, in caved soil, was a graceful water-bottle with a decoration so faint that it can just be distinguished in the half-tone reproduction (Fig. 128).

FIG. 128.—Vessel No. 26. Mound O. (Diameter 4.75 inches.)

With disturbed bones were corroded fragments of what seem to have been hair-ornaments of sheet-copper, but their incomplete condition make absolute identification impossible.

Vessel No. 27, found alone, is an undecorated, wide-mouthed water-bottle (Fig. 129).

Apart from human remains was Vessel No. 28, a broad-mouthed, undecorated water-bottle (Fig. 130), with Vessel No. 29, a small, undecorated pot that once had been provided with two loop-handles.

Burial No. 37 consisted of a deposit of fragments of calcined human bones at the bottom of a pit 32 inches deep. This pit, which had a maximum diameter of 19 inches, had contracted to 13 inches where the calcined fragments were. The calcined deposit, somewhat less in diameter than the pit, had a depth of 9 inches. Throughout the soil above the deposit were other fragments of calcined bone.

Vessel No. 30, a bowl in fragments, unassociated with human remains, has five encircling, incised lines below the rim.

FIG. 129.—Vessel No. 27. Mound O.
(Height 6.5 inches.)

FIG. 130.—Vessel No. 28. Mound O.
(Height 5.5 inches.)

FIG. 131.—Effigy-pipe of stone. Mound O. (Height 8 inches.)

In the southwestern corner of the mound, 3 feet down, were two effigy-pipes. One, of carbonate of lime, representing an animal, had so deteriorated through lapse of time and long contact with moisture that the consistency was about that of clay; in fact, the clay surrounding the pipe was of greater tenacity than it, as, upon removal, the pipe left small particles adhering to the soil. The other, found lying

FIG. 132.—Effigy-pipe of stone. Mound O. (Height 8 inches.)

on its side, immediately with the one just described, is a fine effigy-pipe of soft, red claystone, 8 inches high, representing a squatting male figure, shown in both front and side view in Figs. 131, 132. Unfortunately the knees, part of the right arm, the right hand, and part of the left hand, of the effigy, had all been broken off

FIG. 133.—Vessel No. 31. Mound O. (Diameter of bowl 4.75 inches.)

FIG. 134.—Gorget of sheet-copper. Mound O. (Full size.)

before interment and hence were not found. These pipes were not immediately associated with burials, though human bones were found not far distant.

FIG. 135.—Vessel No. 37. Mound O. [Diameter 4.25 inches.]

With disturbed bones, together, were Vessels Nos. 31, 32, and 33. Vessel No. 31, a cup, has a kind of meander in a cross-hatch field (Fig. 133). Vessel No. 32 was badly broken. Vessel No. 33, also in fragments, proved to be a small bowl with slightly inverted rim and incised decoration consisting of two encircling, parallel lines passing under four equidistant protuberances situated slightly below the rim.

With Burial No. 40, a skull and a few decaying bones probably representing a skeleton, were Vessels Nos. 34 and 35. Nearby were Vessel No. 36, in fragments, and a mass of galena (lead sulphide) the surface of which is coated with a cream-colored deposit of carbonate of lead, suitable for use as paint. Vessel No. 34 is a small, coarse, undecorated, wide-mouthed water-bottle. Vessel No. 35, a small, coarse bowl, has rudely executed, incised, curved lines below an in-turned rim. Vessel No. 36 was badly broken. Adhering to fragments of bone belonging to the trunk of this burial, enveloped in decayed wood or bark, was a circular gorget of sheet-copper, 6.5 inches in diameter, which broke slightly on removal. This gorget, pieced together, shows a central swastika formed by excision, surrounded by many *repoussé* circles (Fig. 134).

Vessel No. 37, of eccentric form (Fig. 135), is of a type once before represented in our search at Moundville, in which a portion of the rim is much lower than the remainder. This vessel has been repaired and slightly restored.

In the northeastern corner of the mound, near a disturbed burial, was an ornament of sheet-copper in fragments and a small mass of lead sulphide. At the distal end of one femur belonging to this burial were large shell beads, and similar shell beads were at the distal extremities of the leg bones, which were in the pit at some distance from the femurs.

With a burial was a ball of black substance, about two inches in diameter, showing various facets where presumably material had been rubbed off for use as paint. Analysis by Dr. H. F. Keller proved the mineral to be psilomelane, a hydrated peroxide of manganese containing considerable quantities of oxide of cobalt.

Shell beads twice, fragments of sheet-copper twice, and single ear-plugs three times, were found in this mound in addition to examples given in detailed description.

In this mound human bones were met with in forty-two places, exclusive of

small fragments here and there. The burials, very badly decayed, were scattered to a much greater extent than were most of those encountered by us at Moundville. Presumably the superficial part of the mound had been dug and redug for burial purposes to such an extent that but few entire burials remained.

The situation in which burials occurred in this mound was contrary to what had been found to be the general rule, for while two or three burials were present in the northeastern corner, no other burials were met with in the eastern part of the mound until the southeastern corner was reached. On the other hand, burials were numerous along the entire western side with the exception of the southwestern corner. Certain burials were present in the northwestern part and some in central parts.

This symmetrical mound was carefully filled by us, as were all others at Moundville where dug into by us; in addition, as we had encroached somewhat on the sides of Mound O, boards were placed at marginal points, projecting above the soil, to prevent subsequent wash of the soft material.

Field East of Mound O.

Near the base of Mound O, on the eastern side, a number of trial-holes were dug by us in a cultivated field, resulting in the finding of an adult skeleton, extended on the back, and, in another place, the skeleton of an infant, having near the head an interesting little vessel with incised line decoration and projections at each end (Fig. 136).

Fig. 136.—Vessel No. 1, Field east of Mound O. (Maximum diameter 3.75 inches.)

Fig. 137.—Ornament of earthenware, Field east of Mound O. (Full size.)

Apart from human remains, in other holes, were a small discoidal of amphibolite and a flat, polished, annular ornament of hard earthenware, about 1.75 inch in diameter (Fig. 137). This ornament is provided with two holes for suspension and a central opening surrounded by incised decoration. The object seems to have been made expressly for an ornament and not shaped from a fragment of vessel.

Mound P.

Mound P has a summit plateau 75 feet in width on the north and on the south, and 95 feet long on the west. Its length on the eastern side is 120 feet. The plateau has a very decided slope downward from south to north. Twenty trial-holes revealed no sign of burials or of pits.

Mound Q.

Mound Q showed no sign of previous cultivation or of digging for relics, though much of the eastern side had been destroyed apparently to make a roadway to the top of the mound at the northern end, presumably for a house that may have occupied the plateau in recent times. The summit plateau, 57 feet across on the north, 43 feet on the south, 52 feet on the west, and but 19 feet on the east where the road entered, had rather rich soil in places, which often indicates the presence of burials. Nine trial-holes were made without finding burials, though the earthenware head of an owl, which had belonged to a

Fig. 138.—Part of earthenware vessel. Mound Q. (About full size.)

Fig. 140.—Vessel No. 1. Field north of Mound Q. (Diameter 1.5 inches.)

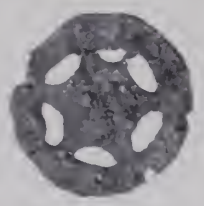


Fig. 139.—Ornament of sheet-copper. Mound Q. (Full size.)

vessel (Fig. 138), and a small ornament of sheet-copper, representing a six-pointed star within a circle (Fig. 139), were met with in the soil.

Field North of Mound Q.

Directly north of Mound Q was a small cultivated patch of ground in which some digging was done by us. It became apparent, however, that, owing to cultivation and wash of rain, burials had been carried away or left so near to the surface that their accompanying artifacts had sustained injury from the plow.

A skeleton at full length on the back had at its head a small pot with two loop-handles and *repoussé* decoration (Fig. 140).

A number of other burials were without artifacts.

Mound R.

Mound R. with a summit plateau 165 feet by 180 feet, approximately, which had long been under cultivation, had the appearance of having lost about 3 feet in height over much of its horizontal surface through cultivation and wash of rain. This conclusion was reached from the fact that, at the edge of the plateau, in places where the roots of trees hold the soil, the level is several feet above that of the rest of the plateau. On the other hand, it is possible that the elevated portion of the plateau is the remains of a rampart or wall that originally surrounded the plateau and that the trees growing upon this raised portion are not the cause of its existence but simply were allowed to remain when the rest of the plateau was cleared for cultivation, because the part on which the trees are was too steep for use. Twenty-seven trial-holes in this plateau gave no indication of its former use as a place of burial.

Ridge North of Mound R.

Northwest of Mound R, is an old-time cemetery for colored persons. Reports are current in Moundville that in digging graves at this place many relics have been unearthed, but considerable investigation by us on the borders of this cemetery were without material result.

East of the cemetery are a patch of cultivated ground, then a strip of land with trees upon it, and, beyond, another cultivated patch. The wooded strip, about 200 feet long and 50 feet across, is bounded on the north by the river bluff and on the south by Mound R. The northern 75 feet of this tract (marked U on the survey), which formed a ridge or low mound somewhat above the level of the remainder of it, which was that of the adjacent fields, were thoroughly dug through by us to a depth of from 3 to 4.5 feet. Even at this depth it was impossible to say that undisturbed ground had been reached in all cases, as fragments of pottery and other midden refuse lay at still lower levels. Presumably this territory had long been occupied as a dwelling site. No pits, however, extended to a depth greater than 4 feet, and it was in pits that burials seemed to occur.

A considerable area surrounding this ridge, including the southern part of the wooded strip from which the ridge rose, was dug by us extensively but with only negative result.

The low ridge dug by us, which attained its maximum height almost at its northern end, contained a few burials here and there throughout; but the great majority of interments and all artifacts of importance came from the northeastern end, where grave-pits had been dug and redug to the great detriment of skeletons and of objects buried with them.

At intervals in the mound were pits, some of considerable size, containing refuse and apparently not intended for burial purposes. One pit, which began 30 inches from the surface and evidently had been formed during the accretion of the mound, was 10 inches deep and 14 inches in diameter. Bordering it were marks of fire, and clay hardened by flame. In this little pit, or oven, were ashes, charcoal, bits of pottery, and deer-bones.

In the mound also were flat fire-places, one at least having clay hardened like brick from continued heat.

A pot-shaped deposit, 8 inches in diameter, 6 inches deep, beginning 2 feet from the surface, seemingly composed of slips of charred cane, was found away from human remains.

Also apart from human bones was a deposit of charred woven material and charcoal.

Remains of the deer were scattered throughout the mound. In one place were bones of what must have been a large part of the carcass of one.

Throughout the mound was the usual midden refuse and other objects, including bits of mica, a number of rough discoidal stones, hammer-stones, pebbles, hones, pitted stones, and a great number of fragments of polished "celts." These fragments, which had been broken by use and not in process of manufacture, as the high polish on parts of them show, number from forty to fifty. They were present in all parts of the mound and were found with burials twice—probably an accidental association. This great number of fragments of "celts" in a mound or dwelling-site is new in our experience.

But one unbroken "celt" was met with—a neatly made hatchet of volcanic rock, 4 inches long, lying apart from any burial.

Also in the mound were two fragments of scalloped stone discs.

Throughout all the digging of this low mound but one arrowhead was met with—a small projectile point of red jasper. This fact emphasizes the marked scarcity of arrowheads noted by us during our digging, and throughout our surface surveys, at Moundville.

In all the digging in this low ridge but one fragment of quartzite was found, so far as our observation went. Abundance of this material, however, lay on the surface of the field north of Mound D.

Part of an interesting pipe, probably of stone belonging to the amphibole group, with the head of a turtle projecting from the bowl, lay alone in the soil (Fig. 141). Similar protruding heads of turtles are found on vessels of earthenware along the northwestern Florida coast.

FIG. 141.—Part of stone pipe with head of turtle. Ridge north of Mound R. (Full size.)

Two small, flat slabs of hematite, each with several facets as if produced by rubbing, were found separately.

Throughout the mound were fragments of very large vessels, of coarse shell-tempered ware, evidently belonging to cooking utensils, many with loop-handles, calling to mind the great vessels found by us along the Alabama river where, however, they had been utilized for urn-burials.

Several effigies of heads of birds were met with, including the head of an owl, ornaments which had been broken from earthenware vessels.

Many fragments of excellent black ware were scattered throughout the mound, especially in the northeastern part, where most of the burials were. These fragments presumably belonged to vessels that had been placed with burials but which later were broken in the digging and redigging of that part of the mound in which they occurred. One sherd of excellent ware and with artistic decoration is shown in Fig. 142.

A part of a cooking vessel, with a series of small loop-handles below the rim, lay in the mound.

FIG. 142.—Sherd. Ridge north of Mound R. (Full size.)

There were found also pottery discs made from parts of vessels; two stopper-shaped objects of earthenware, one somewhat broken; part of what seems to have been a toy ladle of pottery; and part of a disc of pottery not made from a fragment of vessel but directly as an ornament, as is shown by the surface which is polished although there is a gradation in thickness between the central part and the margin. Around the margin are notches, and incised decoration is on one side of the specimen. There are two holes for suspension.

Two piercing implements of bone, several tines of deer-horn, and various mussel-shells, one very large (*Lampsilis purpuratus*), were in the midden debris.

In a mound where there had been so much disturbance, one burial often displacing another, an exact record of the number of burials and their form is impossible to give. In cases where a burial obviously had been made in a certain way, but had undergone partial disturbance, it has been classed by us under its original form. We have designated as aboriginal disturbances such bones as were too much scattered to afford evidence of their original positions. Burials lay from just below the surface to a depth, in one instance, of 4 feet. There were in the mound:

Skeletons at full length on the back, including two children—38.
Aboriginal disturbances, including seven children—15.
Skeleton flexed on the right side—1.
Skeleton flexed on the left side—1.
Skeleton of child, partly flexed—1.
Bones of infant—1.
Decayed bones of child—1.
Bones of children disturbed by our diggers—2.
Bunched burials, including that of a child—3.
Lone skull—1.

The vessels of earthenware from this mound will be described in detail.

Vessel No. 1.—This vessel, a broad-mouthed water-bottle of highly-polished, black ware (Fig. 143), lay near the skull of a child. The decoration consists of the symbol of the four quarters, the cross, which is here represented by four series each of three digits having conventional finger-nails. In addition, are depressions in the body of the vessel, series of fingers pointing upward and downward, and certain cross-hatch decoration, as shown in diagram in Fig. 144. Designs generally similar to that on this vessel, but varying somewhat in minor details, were found several times at Moundville. With Vessel No. 1 were a shell drinking-cup (*Fulgur perversum*), and Vessels Nos. 2 and 3, respectively, an undecorated, broad-mouthed water-bottle and a rude bowl bearing in effigy the head of some animal, looking inward.

Vessel No. 4.—An undecorated water-bottle (Fig. 145) lay at the head of a skeleton.

Vessel No. 5.—In the outskirts of the mound, away from human remains, was a large part of a coarse cooking-pot. Within this fragment was a beautiful toy-bowl, 1.5 inch in diameter and 1 inch in height, symmetrically wrought from a chocolate-colored, banded stone.

Vessel No. 6.—A neat little bowl with inverted rim, having faint, incised decoration, found at the head of a skeleton.

Vessel No. 7.—A bowl in fragments, lying near the skull of a child.

Vessel No. 8.—About two-thirds of a bowl having a large, flat handle projecting horizontally from one side. The opposite part of the bowl is missing.

Vessel No. 9.—A skeleton at full length on the back had charcoal at the feet and minute fragments of a sheet-copper ornament nearby. At the head was a wide-mouthed water-bottle (Fig. 146)[1] bearing an engraved decoration, one of the most remarkable it has been our good fortune to encounter. This design, shown in diagram in Fig. 147, consists of four skulls facing each other in pairs, with two skeleton arms and heads between them. In addition, two symbols are given, the meaning of which is entirely beyond our ken. The skulls show the sutures and

[1] The design has not been strengthened on the vessel, nor has retouching been done on the photographic negative. A white powder has been rubbed into the lines of the design in order to bring them out more clearly in the photograph.

Erratum.—In the second line from the bottom of this page the word "*heads*" should be "*hands*."

FIG. 143.—Vessel No. 1. Ridge north of Mound R. (Height 5.75 inches.)

the orbits, but part of the lower jaw is incorrectly placed, being portrayed as extending beyond the occipital part of the skull.

While it is possible that this anatomically incorrect representation of the lower jaw arose through ignorance, it should be remembered that the aborigines of Moundville were very familiar with the human skeleton, lying exposed, as it did, in the dead-houses and later being a center of interest during the performance of funeral rites.

Possibly the lower jaw was accentuated by the artists of Moundville because of its being regarded as a symbol of importance, as it was by the Mexicans, and perhaps this consensus of opinion arose through "parallelism of thought."

On the other hand, it seems likely enough that the people of Moundville, to

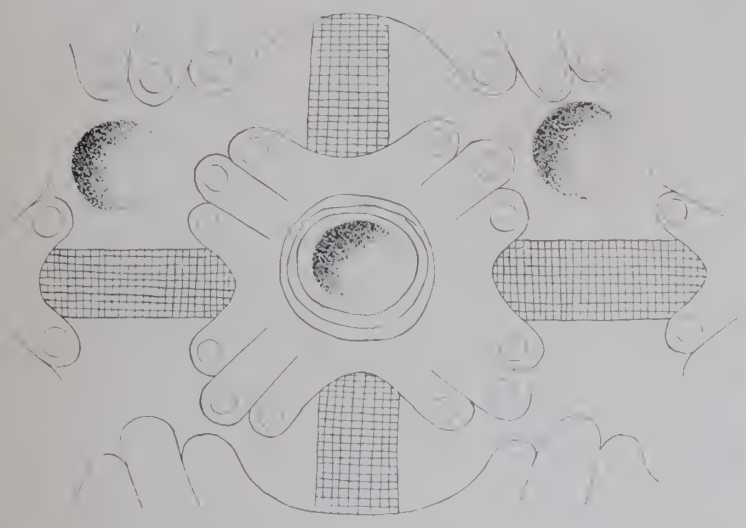


FIG. 144.—Vessel No. 1. Decoration. Ridge north of Mound R. (About half size.)

FIG. 145.—Vessel No. 4. Ridge north of Mound R. (Diameter 7 inches.)

FIG. 146.—Vessel No. 9. Ridge north of Mound R. (Full size.)

some extent, were directly influenced from Mexico. If such were the case, the cause of the misrepresentation of the rami on these skulls would not be far to seek. The Mexican codices are replete with representations of the lower jaw, shown in place in the skull and in the head, and sometimes even drawn alone, flattened out, as in a diagram, or represented as a receptacle for various objects. In many, if not in all, of these representations the articular process is exaggerated, being given the form of a hook. Presumably this was done because the artist regarded the articular process as a distinctive feature of the lower jaw and hence was determined that it should not escape attention. Miss H. Newell Wardle, of our Academy of Natural Sciences, to whom we are indebted for many references on this subject, has called our attention to the point that, presumably, this emphasizing of the articular process of the lower jaw is an expression of the aesthetic

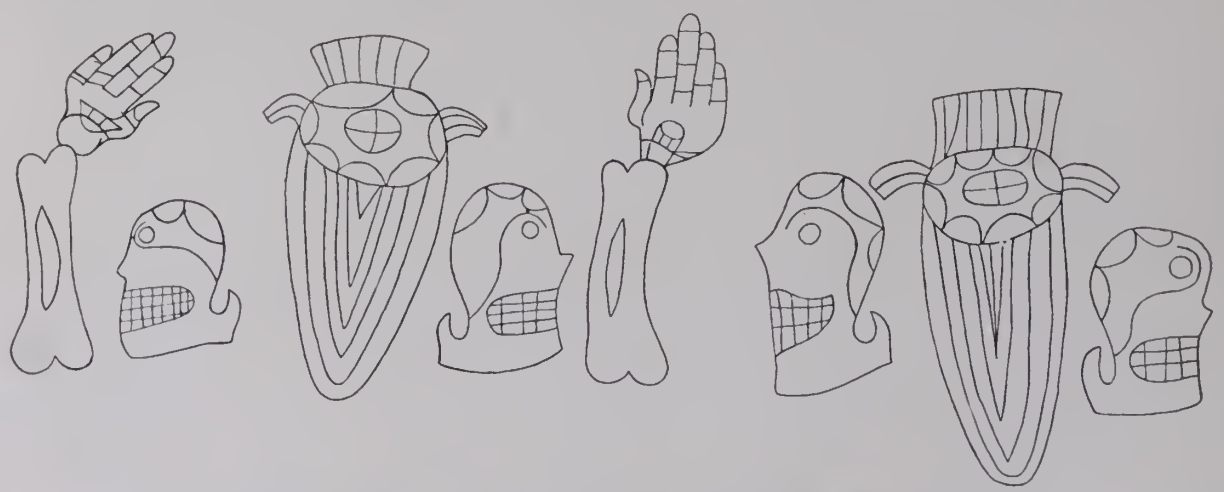


FIG. 117.—Vessel No. 9. Decoration. Ridge north of Mound R. (About half size.)

law familiar from the northwest coast of America, where the dorsal fin of the orca is always placed conspicuously in representation, though in a majority of cases it would be invisible from the view-point. In the same way, the Egyptians show the human eye, when the head is in profile, very much as if the human head conformed anatomically to that of a fish.

So determined was the Mexican artist that the essential attributes of the lower jaw should not escape attention that we see the jaw, represented in place in the skull, still showing the articular processes, although presenting a front view to the observer. A good example of this is shown in Codex Magliabecchiano.[1]

The codices, however, it must be noted, so far as our search goes, show no such great exaggeration of the articular part of the lower jaw, or perhaps of the whole rami, as we find at Moundville, where part of the lower jaw is represented as extending beyond the occipital part of the skull.

The skeleton fore-arm shown on this vessel from Moundville, with the radius and ulna distinctly represented, has a parallel in many figures in the codices. An

[1] XIII, 3, p. 76.

interesting example is given in Codex Nuttall.[1] where Mictlantecutli, "lord of the place of the slain," shows the ribs, vertebræ, the bones of both lower extremities, of one upper arm, and of both fore-arms. Curiously enough, a peculiarity of most of the Mexican figures of the death-god is that to correspond with the double bones of the lower arm and the leg, the humerus of the upper arm and the femur of the thigh are shown as double bones also—a feature well brought out in the figure to which we have referred.

The reader is referred to a few of very many representations in the codices, of the lower jaw and of skeletal extremities.[2]

FIG. 148.—Vessel No. 11. Ridge north of Mound R. (Height 5.4 inches.)

Holmes[3] shows a death's head design on a vessel from Mississippi.

Vessel No. 10, a small, wide-mouthed water-bottle, lay with the scattered bones of a child, with which were two shell beads, each about an inch in length.

Vessels Nos. 11 and 12 were together near a few scattered bones. The former, a wide-mouthed water-bottle (Fig. 148), has five depressions on the body, with each

[1] P. 78, lower right-hand corner.
[2] Codex Vaticanus B., pp. 75, 76.
Codex Laud, Kingsborough, II, p. 11.
Codex Borgia, Loubat edition, Pl. XXVI.
Codex Borgia, Kingsborough, III, pp. 59, 63, 65.
Codex Cospiano, Loubat edition, Pl. IX, X, XI.
Codex Tejervary-Mayer, Pl. III, XXXII.
[3] *Op. cit.*, Pl. LVI.

of which is a design probably representing an arrow and the sun. Vessel No. 12 is a small, undecorated dish of coarse, yellow ware.

Vessel No. 13 is a diminutive, wide-mouthed water-bottle, undecorated, scarcely more than 2 inches in height. This little bottle, found dissociated from human bones, was in a pit where aboriginal disturbance, no doubt, had separated it from its burial.

Vessel No. 14, a bowl with parts of a water-bottle, badly crushed, lay not immediately associated with bones, though as at least seven burials lay in the pit in which the vessel was found, the cause of the separation may well be imagined. With it were crumbling fragments of sheet-copper and a shell gorget (Fig. 149), bearing a bird decoration, which received a blow from a trowel.

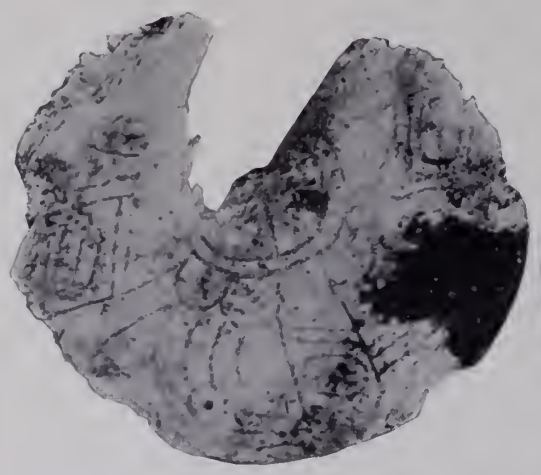


FIG. 149.—Shell gorget. Ridge north of Mound R. (Full size.)

Vessel No. 15, a wide-mouthed water-bottle with scroll decoration and four groups of three finger-tips each, pointing downward, lay badly crushed at the head

FIG. 150.—Vessel No. 15*a*. Ridge north of Mound R. (Diameter 5.5 inches.)

of a skeleton. With this vessel was Vessel No. 15*a*, part of a small bowl with four equidistant protuberances (Fig. 150).

Vessel No. 16, is a broad-mouthed water-bottle in fragments scattered through a pit, having the well-known depressions and scroll decoration.

Vessel No. 17, a broad-mouthed water-bottle (Fig. 151), found at the head of a skeleton, bears on opposite sides an engraved design representing an antlered and winged rattlesnake with forked tongue extended. This design, which we give diagrammatically in Fig. 152, suggests the winged and crested rattlesnake shown by Holmes[1] as on a vessel from Arkansas, and referred to as "one of the most remarkable ever obtained from the mounds." "There can be little doubt," says Professor Holmes, "that the figures of this design are derived from the mythologic art of the people."

Vessels Nos. 18, 19, 20.—These vessels, respectively, a small bowl with beaded margin; a broad-mouthed water-bottle with incised decoration showing five open hands pointing downward, on each of which is an open eye (Fig. 153); and a pot with four loop-handles, each bearing three small protuberances (Fig. 154), were present together under the chest of a skeleton. As there had been much disturb-

[1] *Op. cit.*, p. 91.

FIG. 151.—Vessel No. 17. Ridge north of Mound R. (Height 6 inches.)

ance in the pit in which these vessels were, and as disturbed skeletons (of children) were near at hand, it is possible that these vessels, originally placed at the head of a skeleton, owed their final position to the general disturbance that had prevailed in the pit. Vessel No. 20, which had a small perforation somewhat above the base, was found among roots of a tree, and had sustained a fracture of the rim through their agency. Presumably the perforation on the side is traceable to the same cause.

FIG. 152.—Vessel No. 17. Decoration. Ridge north of Mound R. (About half size.)

FIG. 153.—Vessel No. 19. Ridge north of Mound R. (Diameter 3.5 inches.)

FIG. 155.—Vessel No. 23. Ridge north of Mound R. (Diameter 6.75 inches.)

FIG. 154.—Vessel No. 20. Ridge north of Mound R. (Diameter 6 inches.)

FIG. 156.—Vessel No. 24. Ridge north of Mound R. (Diameter 4.25 inches.)

Vessel No. 21, a wide-mouthed water-bottle with depressions and scroll decoration, lay near the skull of Burial No. 33, with other objects to be described later.

Vessel No. 22, an undecorated, broad-mouthed water-bottle, lay near the scattered bones of a child.

Vessel No. 23, a pot found in fragments, having notched decoration around the rim and two loop-handles (Fig. 155). There have been four equidistant projections on the body of the vessel, one of which belongs on a part not recovered by us. The ware of this vessel, black and polished, is superior to that usually found in Moundville vessels of its shape.

Vessel No. 24, a broad-mouthed water-bottle with two incised designs representing four conventionalized tails of wood-peckers, in pairs (Fig. 156).

Vessel No. 25, an undecorated vessel, hopelessly crushed.

Vessel No. 26, a wide-mouthed water-bottle (Fig. 157), bearing the incised meander shown in diagram in Fig. 158.

Vessel No. 27, an interesting water-bottle, of which a part only was recovered; the remainder has been restored. The decoration, on the original part of the vessel, consisting of down-turned hands in low relief, is shown in diagram in Fig. 159.

Vessel No. 28, an undecorated bowl found lying, as usual, near a skull.

Vessel No. 29, a small, rude pot of coarse ware, having a loop-handle on one side and the remains of one on the other, found apart from human remains.

FIG. 157.—Vessel No. 26. Ridge north of Mound R. (Diameter 5.25 inches.)

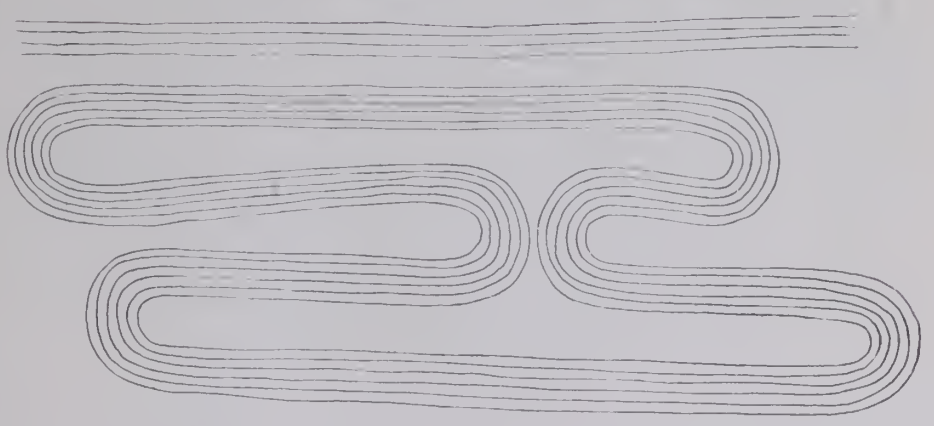


FIG. 158.—Vessel No. 26. Decoration. Ridge north of Mound R. (About half size.)

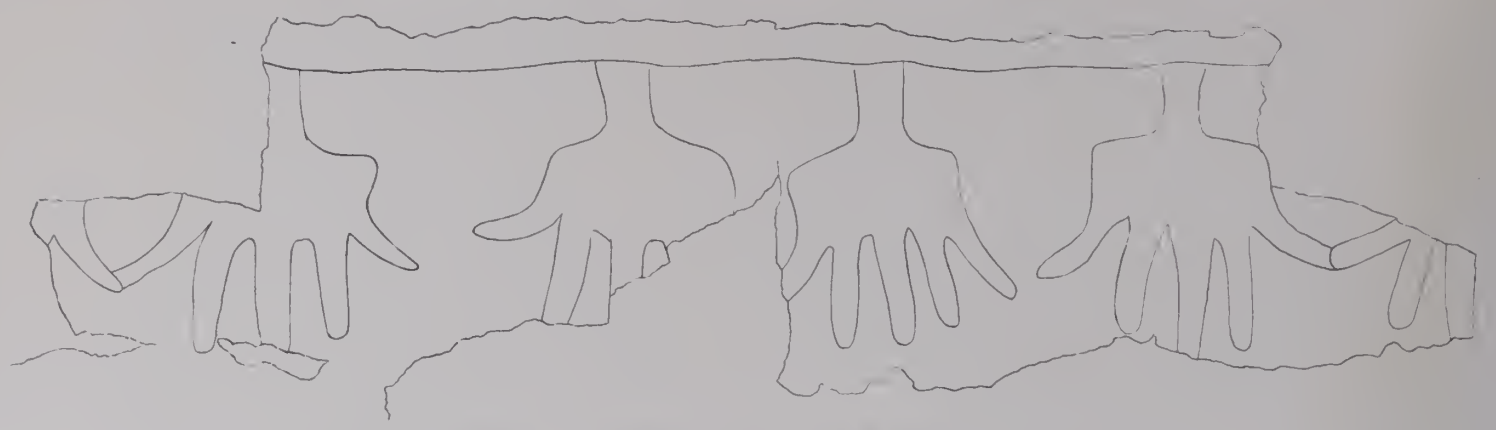


FIG. 159.—Vessel No. 27. Decoration. Ridge north of Mound R. (About half size.)

Vessel No. 30 consists of the lower part of a water-bottle, found in a pit near disturbed human remains (Fig. 160). The decoration, which is most interesting, represents the head, tail and wings of an antlered and winged rattlesnake, as shown in diagram in Fig. 161. With this vessel was part of an undecorated bowl.

Vessel No. 31, exact details as to the finding of which are not in our field notes, is a broad-mouthed water-bottle with the incised meander decoration shown in Fig. 162.

With the exception of earthenware, but few objects had been deposited with the dead in this low mound; but such as were placed there fully made up in quality for the deficiency in number.

In the outskirts of the mound lay a skeleton extended on the back, having near the skull part of a polished "celt" and a very rude maul, probably of diorite,

FIG. 160.—Vessel No. 30. Ridge north of Mound R. (Diameter 5 inches.)

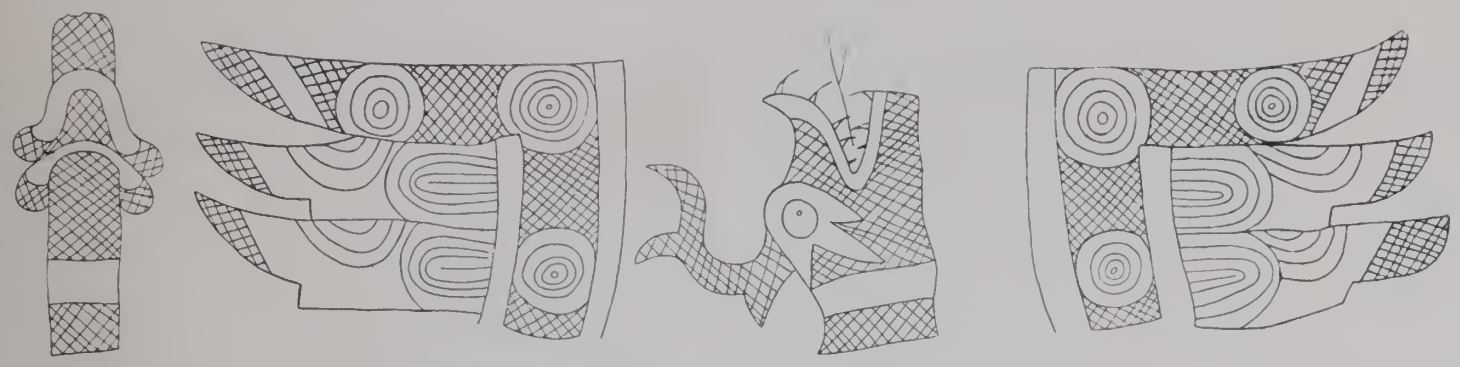


FIG. 161.—Vessel No. 30. Decoration. Ridge north of Mound R. (About half size.)

13 inches in length, shattered by blows at one end, having a shallow, encircling groove, where it had been fastened to a handle, somewhat more than half-way above the heavier end.

With bits of femur and fragments of other decaying bones was a rude, undecorated smoking-pipe of coarse ware and of ordinary type.

In a grave-pit was a skeleton at full length on the back, above disturbed bones of a child. Near these remains were shell beads, a shell gorget having a cross within a circle and a scalloped margin on one side (Fig. 163), and fragments of sheet-copper. On the vertex of the skull of the adult were two beads of wood overlaid

FIG. 162.—Vessel No. 31. Ridge north of Mound R. (Height 5.75 inches.)

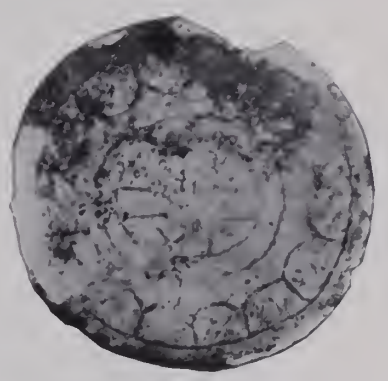


FIG. 163.—Shell gorget. Ridge north of Mound R. (Full size.)

FIG. 164.—Copper fish-hook. Ridge north of Mound R. (Full size.)

FIG. 165.—Effigy-pipe of limestone. Ridge north of Mound R. (Full size.)

FIG. 166.—Effigy-pipe of limestone. Side view. Ridge north of Mound R. (Length 5.75 inches.)

FIG. 167.—Stone vessel. Ridge north of Mound R. (About half size.)

with sheet-copper, each somewhat less than an inch in diameter. Part of the skull is stained green from contact with the metal. Nearby, in the soil, was a copper fish-hook (Fig. 164), unbarbed, but grooved to receive a line. We believe this to be the only fish-hook of copper ever discovered in southern United States.

Directly under the head of a disturbed skeleton was a disc of fine-grained gneiss, 5.5 inches in diameter, with notched margin, and having a trace of white paint on one side and a quantity of red pigment on the other. With the disc were twelve spherical shell beads each about .6 of an inch in diameter.

FIG. 168.—Stone vessel. Duck's head, side view. (Slightly under full size.)

On the chest of a partly disturbed skeleton were fragments of a shell gorget.

In a pit, 17 inches from the surface, were the remains of a skeleton of an adult, on its back, the part extending from about half-way down the trunk having been

FIG. 169.—Stone vessel. Duck's head, front view. (Slightly under full size.)

cut off in making space for another interment. At the skull were Vessel No. 21, also parts of an undecorated vessel, and bits of sheet-copper and shell beads. With these, immediately against the skull, was an effigy-pipe of limestone, or possibly

phosphate rock, doubtless representing a panther, since neither the wolf nor the bear, the only other large carnivores frequenting the neighborhood of Moundville in the past, assumes the crouching position shown by the effigy. This pipe, shown in two positions (Figs. 165, 166), is 4.2 inches in height and 5.75 inches from end of snout to tip of tail. Traces of carbonized tobacco or of some other herb, remain in the bowl.

Alongside this pipe and projecting beyond it, was what seemed to be a sharp fragment of stone. This fragment, when taken from its position, proved to be part of the rim of a large bowl, from which projected upward a beautifully-carved arching neck and head of a crested duck, evidently the drake of the woodduck. Part of the crest is missing. Some distance away, in the same pit, lying on its side just below the surface of the ground, as if it had been removed at the time the skeleton, with which part of it remained, was cut off, was the rest of the bowl to which the duck-head belonged. On the side of the bowl opposite the head is the conventional tail usually found on vessels of earthenware on which a head is represented. The vessel, the parts of which have been remited, is 11.5 inches in maximum height. The height of the bowl proper is 6.8 inches; its diameter is 11.75 inches. The thickness of the rim, which varies slightly, ranges between .25 and .3 of one inch. On the head and neck of the duck, on the conventional tail and on the body of the vessel, is incised decoration executed with wonderful accuracy, all things being considered. This triumph of aboriginal endeavor, the "Portland vase" of prehistoric art in the United States, is shown in Fig. 167; the head of the duck is represented in three positions in Figs. 168, 169, 170; the decoration on the back of the neck and head is shown in diagram in Fig. 171.

The missing part of the crest of the duck was vainly sought by five men, who, for several hours, passed between their fingers all material that had been thrown from the excavation—the clayey nature of the soil unfortunately precluding the use of sieves. Presumably the blow that broke the head from the rest of the bowl, struck the crest also, shivering parts to small fragments.

When this vessel was found we knew it to be the result of much labor, although we supposed it to be of soft stone—slate presumably. Examination, however, showed the material to be of far greater hardness than characterizes slate. Naturally, the vessel has not been mutilated for exact determination of its material, which, however, probably has been arrived at with a reasonable degree of certainty. We have referred to a maul found in the low mound from which this vessel came. Not far away, a member of our party picked up a fragment of what had been a polished bowl of stone of about the thickness of the duck-bowl, and, as indicated by its curvature, probably of about the same size. This fragment, a part of the maul, and the vessel found by us, were submitted to Dr. E. Goldsmith, who, by minor tests, decided that all three were of the same stone, and named the group from which they came.

Complete quantitative analyses by Dr. H. F. Keller, of part of the maul and of a portion of the fragment of the stone vessel showed them to be practically of the

FIG. 170.—Stone vessel. Duck's head, back view. (About full size.)

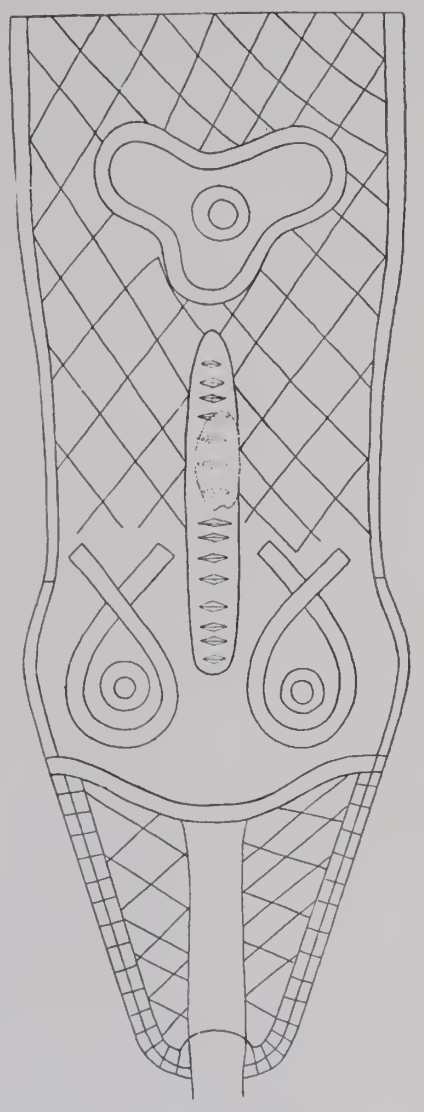


FIG. 171.—Stone vessel. Decoration on head and neck of duck. (About half size.)

same kind of stone. The results of these analyses, and two slides for the microscope, one made from each of the same two specimens, were submitted to Prof. George P. Merrill, Head Curator of Geology, United States National Museum, who kindly had consented to investigate the matter. Professor Merrill writes:

"I find on examination that the rock is so highly altered that its original mineral composition cannot be determined with any degree of accuracy.

"From examination of the structure, so far as it has been preserved during the

process of alteration, and a consideration of the chemical composition, as given in your analyses, I am inclined to regard the stone as a diorite. This, however, must be accepted with a certain amount of allowance, for the reasons before stated."

With a reasonable degree of certainty, then, we can pronounce the vessel from the low mound north of Mound R to be of diorite, a rock so hard that the making of the bowl by aboriginal methods must have been a task indeed.

We are indebted to Mr. James A. Anderson, whose kindness we have acknowledged before in this report, for a geological map of Alabama, made by Prof. E. A. Smith, State Geologist. It is seen by this map that the middle eastern part of the State is, geologically, of igneous and metamorphic rocks, so that the vessel or the material to make it, as the case may be, had, of necessity, no great distance to come.

Field West of Mound R.

Immediately west of Mound R is a cultivated field having considerable slope in places. A tree of recent growth in this field has some of its roots about a foot above the present surrounding level, thus showing what destruction to cemeteries prolonged cultivation must have wrought at Moundville.

Considerable digging was done in this field, and several burials were met with in addition to a number of disturbed bones.

A skeleton at full length on the back, lying just below the surface, had, at the

Fig. 172.—Vessel No. 1. Field west of Mound R. (Diameter 5 inches.)

Fig. 173.—Vessel No. 2. Field west of Mound R. (Diameter 3.75 inches.)

knees, a smoking-pipe of coarse ware and fragments of a rude pot with an arrowhead of jasper nearby. Under the legs were several small fragments of sheet-copper. At the feet were 103 pebbles and parts of pebbles, all or nearly all of jasper. With these were six small arrowheads of jasper, more or less rudely made, and one drill of the same material. At the left knee was Vessel No. 1, a rude water-bottle of coarse, yellow ware, with three large, hollow feet (Fig. 172). Part of the body of this vessel, which had been carried away by the plough, has been restored. At the skull was Vessel No. 2 (Fig. 173), which, by an unfortunate blow from a plough, has lost its upper part. The decoration is a repetition of the open hand with the open eye upon it.

A handsome piercing implement of bone, 6 inches long, highly polished, with three notches at each of two sides of the blunt end, lay apart from human remains.

A full-length skeleton, on the back, had at the neck a quantity of beads made from portions cut from thick parts of mussel-shells, where the muscular attachment is. These nacreous beads must have presented an attractive appearance in their time.

A skeleton, also at full length, whose interment had cut through another skeleton, had shell beads at the wrist.

A small, thin disc of limonite, with many scratches on each side, and a small stone chisel with double cutting edge, lay apart from human remains.

Mound S.

Mound S, a small remnant of what once was an inconsiderable mound within the line of encircling mounds, was dug into by us with no material result.

Mound T.

Mound T, apparently another small remnant within the circle, was thoroughly dug into by us with no result except the discovery of part of a disturbed skeleton just under the surface.

Here ends the account in detail of our digging at Moundville. Let us now consider the question of domiciliary mounds. In much of our work at Moundville, and all along the Black Warrior river, for that matter, we have assumed that large mounds with flat summit plateaus were built by the aborigines for purposes other than that of sepulture. Now let us see on what grounds this assumption was based. As we have to do with southern mounds, we need go no farther for data than our own field of exploration in the South.

The mound on Little Island,[1] South Carolina, elliptical in outline, 11 feet to 14 feet in height, was about 100 feet by 150 feet in basal diameter. The summit plateau was 38 feet by 61 feet. An excavation in the central part of the mound, about 45 feet by 55 feet, to the base, was made by us. One superficial burial was met with, and also the bones of an infant under a house of clay and wattle, which

[1] "Certain Aboriginal Mounds of the Coast of South Carolina," Journ. Acad. Nat. Sci. of Phila., Vol. XI.

was found on the base of the mound. Evidently this mound was not built for burial purposes.

On St. Helena Island, South Carolina, is a mound, about 13 feet in height, known as Indian Hill. In shape it is approximately a truncated cone with basal diameters of 138 and 129 feet. The summit plateau, about circular, is 62 feet across. A trench 18 feet wide at first, later contracted to 15 feet, was dug along the base to its central part. Four distinct stages of occupancy were met with, but no burials.

The Shields mound,[1] near the mouth of St. Johns river, Florida, has a height of 18 feet. Its base, excluding a graded way, is about 214 feet square. Its summit plateau is 115 feet by 133 feet.

Excavations around the base of this mound yielded burials that appeared to have been rather recent, and having no artifacts with them.

Next the entire eastern slope of the mound was dug away, and, in addition, 10 feet of the eastern end of the body of the mound, under the summit plateau. This digging, which was done along the base of the mound, was extended inward 27 feet in a trench 175 feet broad. Then the trench, reduced to a breadth of 115 feet, was carried in 21 feet farther. The mound showed various periods of occupancy but no burials were found at a depth of more than 3 feet from the surface.

Next, all that remained of the summit plateau was dug through at a depth of from 6 to 8 feet. Human remains, reduced almost to dust in many cases, were found in abundance, all within 4 feet of the surface, with four exceptions, which were 6 feet down. Here we have a domiciliary mound with superficial burials.

Near St. Johns Landing,[2] on St. Johns river, was a mound, circular in outline, 7.5 feet in height. Its basal diameter was 95 feet; its summit plateau was 60 feet across. Twenty-one men, working five days, levelled it to the base. With the exception of two burials near the surface, no human remains were met with. Assuredly, this mound was not intended for burial purposes.

Near Walton's Camp,[3] Santa Rosa county, Florida, is a mound about 12 feet in height. The basal diameters are 178 feet by 223 feet; those of the summit plateau, 135 feet by 179 feet. A great amount of digging in this mound showed it to have been used as a place of domicile and to have been heightened and increased in extent at different periods. Only superficial burials were found in it.

It was on account of the results obtained in the foregoing mounds, and in a number of others not particularly noted here, that we assumed the mounds of Moundville, on account of their size and shape, to have been built for a purpose, or for purposes, other than those of burial, a conclusion, we think, borne out by the result of our work in Mound C and in Mound L. Of course, it is possible that certain of the mounds there were built by stages, and that burials were made from the

[1] "Certain River Mounds of Duval County, Florida," Journ. Acad. Nat. Sci. of Phila., Vol. X.

[2] "Certain Sand Mounds of the St. Johns River, Florida," Part II, Journ. Acad. Nat. Sci. of Phila., Vol. X.

[3] "Certain Aboriginal Remains of the Northwest Florida Coast," Part I, Journ. Acad. Nat. Sci. of Phila., Vol. XI.

various levels of occupancy, as was shown to have occurred in Mound C. But even if such were the case, and to determine this would be a stupendous work, the character of the mounds would remain the same.

Mound in Moundville, Hale County.

In the town of Moundville, in front of the dwelling of Mr. J. A. Elliott, in pine woods, is a much-spread, circular mound of sand, about 3 feet in height. Thirteen trial-holes produced no positive result.

Mound Near McCowin's Bluff, Tuscaloosa County.

This mound, about 9 feet in height, in sight from the river, has been oblong, but at present its corners and sides have been greatly rounded by cultivation. We were unable to obtain permission to investigate this mound; however, a small excavation, made by us in the central part of the plateau, showed the mound, at that place, to be of hard clay and very unlike domiciliary mounds in which burials have been made.

Mound near R. H. Foster Landing, Tuscaloosa County.

At this landing is a plantation, belonging to Miss Florence H. Foster, of Sylvan, Alabama, on which is a mound almost obliterated by cultivation. That which remains was dug into at a number of places by us, but no sign of human bones or of artifacts was encountered.

Parts of surrounding fields show traces of aboriginal occupancy. Though many holes were dug by us to undisturbed soil, but one burial pit was revealed. In this grave-pit were two skeletons at full length lying on their backs, one 2 feet below the surface, the other 3 feet. No artifacts were with them.

Mound near Jones' Ferry Landing, Tuscaloosa County.

This mound, about one mile in a northerly direction from the landing, in a cultivated field not far from the water, had been largely ploughed away. Fragments of pottery and a human tooth lay on the surface. As the field from which the mound rises is subject to overflow and consequent wash, no excavation was permitted.

Mound near Hill's Gin Landing, Tuscaloosa County.

This mound, in a northerly direction from the landing, near the river, on property of Dr. T. M. Leatherwood, of Tuscaloosa, is 6 feet 8 inches high. Its length east and west is 133 feet; its breadth north and south is 100 feet. Its summit plateau is 91 feet by 69 feet in corresponding directions. Thirteen trial-holes yielded neither human bone nor artifact.

Cemetery below Foster's Ferry Landbridge, Tuscaloosa County.

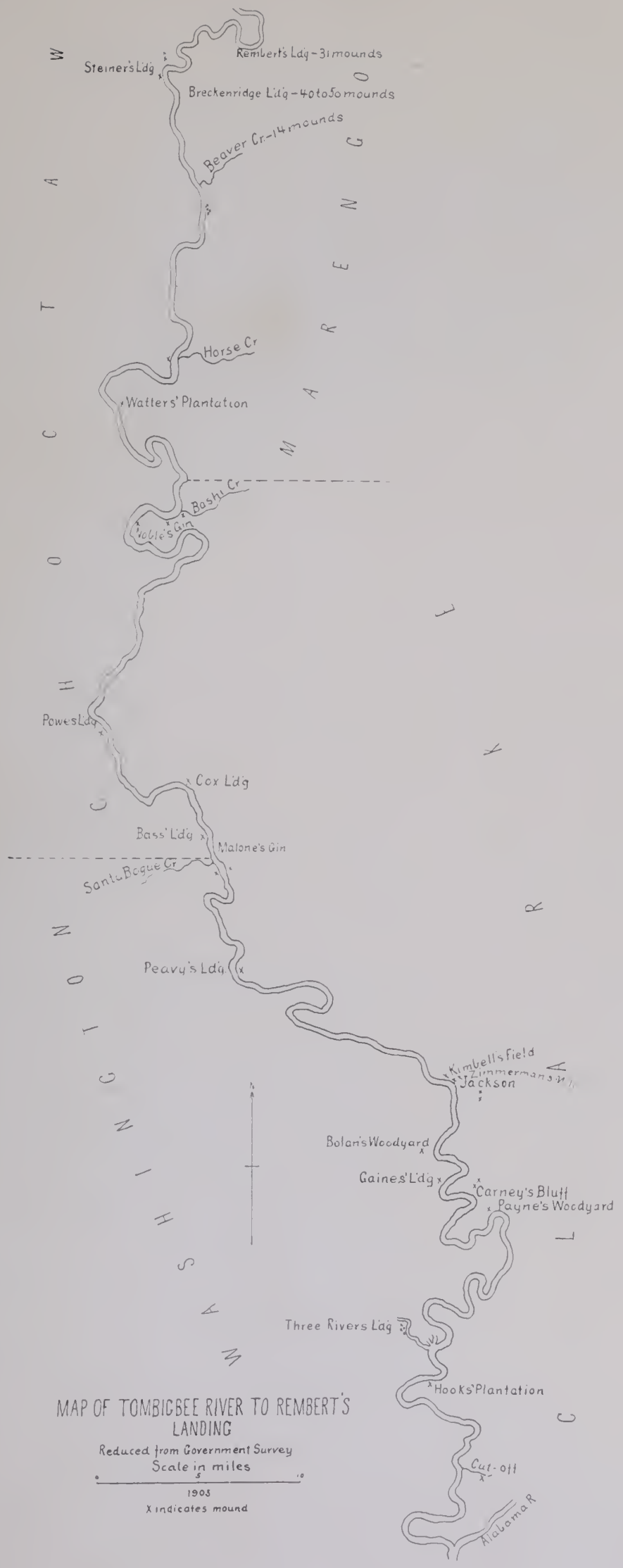
Reports are current that human bones have been found at this place in the cultivation of the fields, and that vessels of earthenware have been laid bare by freshets. Certain vessels in the Museum of the University of Alabama, near Tuscaloosa, are marked as having come from Foster's Ferry, but we are informed by Mr. Anderson, who is greatly interested in archæology, that the vessels were obtained long ago and that data as to the exact locality whence they came are wanting. Considerable digging was done by us at this place, in spots pointed out by residents as having furnished evidence in the past of being places of burial, but neither bones nor artifacts were met with by us. Presumably former graves had been ploughed through or washed away by freshets. There is a remnant of a mound on the river bank.

Cemetery above Foster's Ferry Landbridge, Tuscaloosa County.

A short distance above the landbridge, on the eastern side of the river, is a plantation where, it is said, aboriginal ware has been found and where our agent, when locating mounds, saw much broken pottery on the surface. We were not permitted to dig here, the owner fearing ill effect from loosened ground at the coming of another freshet.

There are other localities along the Black Warrior river below Tuscaloosa, where the finding of aboriginal earthenware has been reported, but permission to dig was not forthcoming, the owners fearing injury to the property in flood-time.

The reader will note that along the Black Warrior river, between its junction with the Tombigbee, and Tuscaloosa, no burial mound was met with by us. All aboriginal interments were in graves. The occasional use of the summit plateau of a domiciliary mound as a cemetery by the aborigines, forms no exception to this rule.


Rembert's Ldg - 31 mounds
Steiner's Ldg
Breckenridge Ldg - 40 to 50 mounds
Beaver Cr - 14 mounds
Horse Cr
Watters' Plantation
Bashi Cr
Noble's Gin
Powes Ldg
Cox Ldg
Bass' Ldg
Malone's Gin
Santa Bogue Cr
Peavy's Ldg
Kimbell's Field
Zimmerman's
Jackson
Bolan's Woodyard
Gaines' Ldg
Carney's Bluff
Payne's Woodyard
Three Rivers Ldg
Hooks' Plantation
Cut-off
Alabama R
WASHINGTON
MARENGO
CHOCTAW
CLARKE
MAP OF TOMBIGBEE RIVER TO REMBERT'S LANDING
Reduced from Government Survey
Scale in miles
0
5
10
1903
X indicates mound

CERTAIN ABORIGINAL REMAINS OF THE LOWER TOMBIGBEE RIVER.

By Clarence B. Moore.

As the reader is aware, the Tombigbee and Alabama rivers unite to form the Mobile river about forty-five miles, by water, above the city of Mobile, Alabama.

The Mobile river and the Alabama were investigated by us during the season of 1899.[1]

During the summer of 1900, Mr. J. S. Raybon, captain of the steamer from which our mound work is done, started with a companion at Columbus, Miss., the present head of navigation, and continued down the little Tombigbee river, as the upper part of the Tombigbee before its union with the Black Warrior, near Demopolis, is sometimes called, and down the Tombigbee river to its junction with the Alabama. In this way were located a great number of mounds, the owners of which almost unanimously accorded us permission to dig.

Part of the winter of 1901 was devoted by us to a careful examination of the Little Tombigbee river between Columbus, Miss., and Demopolis, Ala., 149 miles by water. In addition, the upper 29 miles of the Tombigbee river, from Demopolis to Bickley's Landing, were investigated.[2] This left unexplored by us 156 miles by water between Bickley's Landing and the junction of the Tombigbee with the Alabama. It is with these 156 miles that this account of part of our work of the season of 1905 has to do. Instead of going downstream, however, as we did in 1901, this season we went up the Tombigbee to the place where our work had ended before.

The warm thanks of the Academy are tendered all owners of mounds and camp sites on the Tombigbee river, who so courteously placed their property at its disposal.

Mounds and Camp Sites Investigated.

Mound near the Cut-off, Clarke County.
Mound at Hooks' Plantation, Clarke County.
Mounds at Three Rivers Landing, Washington County (4).
Mound at Payne's Woodyard, Clarke County.
Mound near Carney's Bluff, Clarke County (2).
Mound near Gaines' Landing, Washington County.
Mound near Bolan's Woodyard, Washington County.

[1] "Certain Aboriginal Remains of the Alabama River," Journ. Acad. Nat. Sci. of Phila., Vol. XI.
[2] "Certain Aboriginal Remains of the Tombigbee River," Journ. Acad. Nat. Sci. of Phila., Vol. XI.

Mounds near Jackson, Clarke County (2).
Mounds at Jackson Landing, Clarke County (2).
Mound in Kimbell's Field, Clarke County.
Mound opposite Peavey's Landing, Washington County.
Mound near Santa Bogue creek, Washington County.
Mound near Malone's Gin, Clarke County.
Mound near Bass' Landing, Choctaw County.
Mound at Cox's Landing, Clarke County.
Dwelling Site at Thornton's Upper Landing, Clarke County.
Mound near Powe's Landing, Choctaw County.
Mound near Noble's Gin, Clarke County.
Mound below Bashi creek, Clarke County.
Mound near Bashi creek, Clarke County.
Mound on the Watters' Plantation, Marengo County.
Mound below Horse creek, Marengo County.
Mounds below Beaver creek, Marengo County (4).
Mounds near mouth of Beaver creek, Marengo County (14).
Mounds near Breckenridge Landing, Marengo County (40 to 50).
Mounds near Steiner's Landing, Choctaw County (3).
Mounds near Rembert's Landing, Marengo County (31).

Mound near the Cut-off, Clarke County.

The Cut-off is a narrow water-way between the Alabama and Tombigbee rivers, eight miles by water above their junction. The mound, on property belonging to Mr. C. G. Foote, of Calvert, Alabama, is in thick swamp, about 150 yards from the southern side of the Cut-off, and approximately three-quarters of a mile from the Tombigbee river. The mound is composed of a mixture of clay, sand, and loam. Its height is 5 feet 4 inches; its basal diameter, 62 feet. As it was not deemed advisable to destroy this mound, owing to its use as a place of refuge by cattle in times of high water, thirteen excavations, each about 3 feet square, were made in it to the base.

In one excavation was a small bunched burial consisting of a skull with its lower jaw, one clavicle, one bit of pelvis, one scapula, three cervical vertebræ, and several foot-bones.

Nine inches from the surface was a small layer of fragments of calcined, human bones, including parts of a skull. Directly beneath this layer was a pile of unburnt bones, with two crania, accompanying which was a hone of ferruginous sandstone. Dissociated in this mound were a few pot-sherds, one shell-tempered, several without shell-tempering. Certain sherds, of excellent ware, bore incised decoration.

Mound on Hooks' Plantation, Clarke County.

Hooks' plantation, the property of Mr. A. F. Hooks, of McIntosh Bluff, Ala., is about two miles above McIntosh Landing, but on the eastern side of the river.

The mound, which resembles a natural ridge and probably was an elevation made by wash of water in flood-time, to which, perhaps, an amount of sandy clay had been added at one end by the aborigines, is in the swamp about one hundred yards in a southeasterly direction from the landing. No measurements were taken, as we found it impossible to distinguish between the artificial and the natural, but 2 feet closely approximates the maximum height. As this mound serves as a refuge for cattle during high water, it was not completely leveled, though a large part of it was dug through.

Fourteen inches down was a skull in fragments, like all others found in the mound. Near it were two bits of bone.

Beginning one foot from the surface was a layer of bones, of irregular outline, 20 inches by 30 inches in maximum diameters, including four skulls, one belonging to a child. The average thickness of this layer was somewhat less than that of the skulls it contained.

Near the deposit just described was a bunched burial, including one skull.

Fragments of a long-bone lay about 8 inches below the surface.

Six inches down was the lower part of a bowl of inferior ware, in fragments, resting on its base. This remaining part had a depth of eight inches. On the bottom lay an astragalus of an adult. Above this bone was a pile of fragments representing part of another vessel. Presumably the ground had been under cultivation in former times, and all these fragments were remains of an enclosing bowl and its surmounting, inverted vessel. In all probability most of the bones included in this urn-burial had been carried away by the plough which broke the vessels.

In another part of the mound was the base of a large bowl, probably all that remained of an urn-burial.

Ten inches from the surface was a flat mass of hematite, about the size of a fist, in a small pocket of charcoal. Several nails and one spike of iron lay together apart from the interments.

With the smaller bunched burial, to which reference has been made, were glass beads. With the larger burials were glass beads; four beads of sheet-copper or sheet-brass, corroded through and through; an object of glass resembling the stem of a wine-glass with the base broken away; and four Romanist medals of saints, certain of which had been wrapped in matting, parts of which remained. Three of these medals had "eyes," or small, circular attachments for suspension. The "eye" belonging to the fourth medal, broken off, had been substituted by a small hole. The unappreciative savage, however, had placed this hole at the lower side of the medal, so that the saints hung upside down when the medal was suspended.

Mounds near Three Rivers Landing, Washington County.

These mounds, four in number, in sight one of another, on property of Mr. James B. Slade, of Slade's, Alabama, are about two hundred yards in a SSW. direction from the landing. It is said positively that these mounds, in common with the surrounding territory, have been under cultivation in the past, a report borne out by their extended appearance.

The northernmost mound, of clear, yellow sand, yielded no return save half a "banner-stone" wrought from a clayey material. Two holes show where the parts of the ornament had been lashed together with the aid of similar perforations in the missing half.

The second mound, 18 inches high and 35 feet in basal diameter, seemed to have been built for domiciliary purposes. It was composed of sandy loam, almost black, having a sprinkling of shells, mostly broken, one kind being a fresh-water mussel (*Quadrula trapezoides*). Certain of the shells are calcined. The dark sand, discolored by admixture of organic matter, was found to a depth of 30 inches, or one foot more than the height of the mound. This does not imply, however, that work had been done by the aborigines below the original surface of the ground, but rather that sand and leaf-mould had gathered on the general level around the mound after its completion, thus lessening its height. This domiciliary mound, with its blackened earth, shells, deer-bones, and other debris, had in one part a local layer of clear, yellow sand, which had been cut through, here and there, for burials placed below it. The mound, then, had been used as a burial mound after its completion or during the last stage of its occupancy. The mound was completely leveled by us.

Apart from human remains, were: hammer-stones; pebble-hammers; pebbles, whole and broken; hones of ferruginous sandstone; several tines of staghorn; a canine tooth of a large carnivore; part of a bone needle with an eye; a number of broken arrowheads or knives; eight lanceheads, arrowheads, and knives, three of chert, five of quartzite, some variegated; various fragments of earthenware, some shell-tempered, others not, none showing any novelty in design.

Two feet nine inches down, apart from human remains, was an interesting deposit of eight leaf-shaped implements of quartzite, each about 2.5 inches and 4.5 inches in maximum diameters, neatly piled one upon another.

While the burials in this mound were not marginal, neither were they entirely central, though all may be said to have been in the body of the mound. The condition of the bones, while far from good, was better than is the case in many mounds, owing, perhaps, to infiltration of lime salts from the shells. Two skulls with their mandibles were saved in fair condition. Each shows marks of cranial compression on the frontal part, as did each skull in this mound, not too badly crushed to allow determination. One of the two skulls, that of an adolescent, showed, in addition to the effect of frontal compression, a longitudinal groove along the middle line of the skull. The two crania, the only ones found by us in a condition to preserve during our entire season's work, were sent by us to the United States National Museum at Washington.

Eighteen inches from the surface, below a space cut through the local layer of sand, of which mention has been made, was a bunched burial consisting of bones of an adult and of a child.

Fifteen inches below the surface lay a bunched burial with one cranium, and, at about the same depth, some distance away, was a bunch of bones with two crania. With the latter burial were a number of glass beads.

A skeleton at full length on the back lay 1 foot 10 inches from the surface. The cranium was one of the two to which reference has been made.

In a grave 3 feet 5 inches deep, made by cutting through the local layer of yellow sand, and extending below the base of the mound, lay a skeleton at full length on the back, in anatomical order up to the upper dorsal region. The uppermost dorsal, and the cervical, vertebræ were in disorder. Just beyond them were the right clavicle and the manubrium. The skull, the left clavicle, both scapulæ, and both humeri were missing. The radii and ulnæ and all the finger bones were in place, as were most of the ribs. The head and neck of the right femur and the corresponding acetabulum, which showed a pathological condition, have been sent by us to the Army Medical Museum at Washington.

Two feet six inches from the surface was a skeleton at full length on the back, having all bones present except the calvarium. The atlas was turned over backward, as if disturbed by the removal of part of the skull.

The skeleton of a child, flexed on the right side, lay 2 feet 2 inches from the surface.

The skeletons of two children, side by side, each flexed on the left side, lay 2 feet 3 inches down.

In a grave which had been cut through the local layer of yellow sand, 20 inches from the surface, was the skeleton of a child, partly flexed on the left side.

About the same depth in another part of the mound was the complete skeleton of an adult, lying at full length on the back.

A skeleton, also at full length on the back, had a skull showing marked frontal flattening, one of the two sent to the Army Medical Museum.

There were also in this mound: a bunched burial with one skull; a lone calvarium; part of a skeleton without a cranium, parts in order, others not; the skeleton of an adolescent, in order to the lumbar region but disarranged above.

But a few inches below the surface was the body of a large bowl, of coarse, shell-tempered ware, with rough, incised and punctate decoration. In this large fragment, from which the rim was entirely missing, were ten human vertebræ, a sternum, one clavicle, one scapula, and certain ribs. Obviously the upper part of this bowl had been wrecked by contact with a plough, and possibly, at the same time, an inverted bowl, serving as a cover, and perhaps some of the bones, may have been carried away. We have found numerous urn-burials in this condition in Georgia and along the Alabama river.

Thirty inches from the surface lay a skeleton at full length on the back. The left arm was parallel with the body; the right forearm was flexed upward, the hand resting on the shoulder. The skull lay on its vertex, the face turned from the rest of the skeleton. Three cervical vertebræ lay beside the skull; the mandible and one clavicle lay a little beyond it. Presumably in removing the skeleton from the dead-house after the flesh had decayed, the skeleton being held together by ligaments, the skull and certain neighboring parts had become detached and had been carelessly replaced. Near the neck were many glass beads and two barrel-shaped ones

of shell. By the skull were two neatly-made shell hair-pins, more pointed than is usually the case. Inverted on the base of the skull, covering but part of it, like a cap, as shown in Fig. 1, was an imperforate bowl of common shell-tempered ware, undecorated save for four small, equidistant projections at the rim. The measurements[1] of this bowl are: maximum diameter, 6.5 inches; diameter of opening, 5.5 inches; height, 4 inches.

In a recent paper[2] mention was made of what might be called a form of urn-burial that had been noted in New Mexico and Arizona, where the skull, lying with its skeleton, was covered by an inverted bowl. In the early part of the present

FIG. 1.—Burial. Mound near Three Rivers Landing.

season (1905) we found in a mound to the north of Mobile bay, Alabama, just such a burial, the skull being entirely covered by a curiously decorated bowl. Unfortunately we found no repetition of this form of burial either on Mobile bay or on Mississippi sound, as may be noted in the report which follows this one. This discovery, on the Tombigbee river, of a bowl inverted on a skull, though not covering it, may be regarded as additional evidence that the custom of placing bowls over skulls[3] with their skeletons, occasionally was practised farther east than has hitherto been reported.

The third mound in order, on the edge of the bluff, originally circular in outline, had a small part washed away. Its height was 2 feet 2 inches; the basal

[1] All measurements of earthenware in this report are approximate only.

[2] "Aboriginal Urn-burial in the United States," by Clarence B. Moore, American Anthropologist, Oct.-Dec., 1904.

[3] The reader will not confuse this custom with a well-known form of urn-burial practised along the northwestern Florida coast, where inverted bowls were placed over isolated skulls or skulls accompanied by a few bones only.

diameter, 50 feet. More than three-quarters of the original area of the mound were dug away by us, little being left but portions around two large trees. The material was sand with admixture of loam. Signs of former use as a place of abode were wanting.

Apart from human remains, together, were sixteen pebbles or parts of pebbles, a hone, and near these a lump of hematite. Elsewhere in the mound, away from burials, were: a circular stone, about 4 inches in diameter, pitted on each side; a mass of ferruginous sandstone, which probably had been used as a hammer; four arrowheads or knives, some of chert, some of quartzite: a sharp flake of chert: several pebbles; a few bits of earthenware.

Human remains in this mound were badly decayed. There were present in the mound what was left of twenty-two crania, exclusive of those of children. Three of these showed frontal compression and six did not. Thirteen skulls were too badly decayed to allow determination. One of the skulls with anterior flattening had, in addition, a longitudinal groove of the kind noted in the preceding mound.

As exact description of all burials in this mound would be wearisome to the reader, only those of especial interest will be noted in detail. There were present in the mound burials in fourteen places.

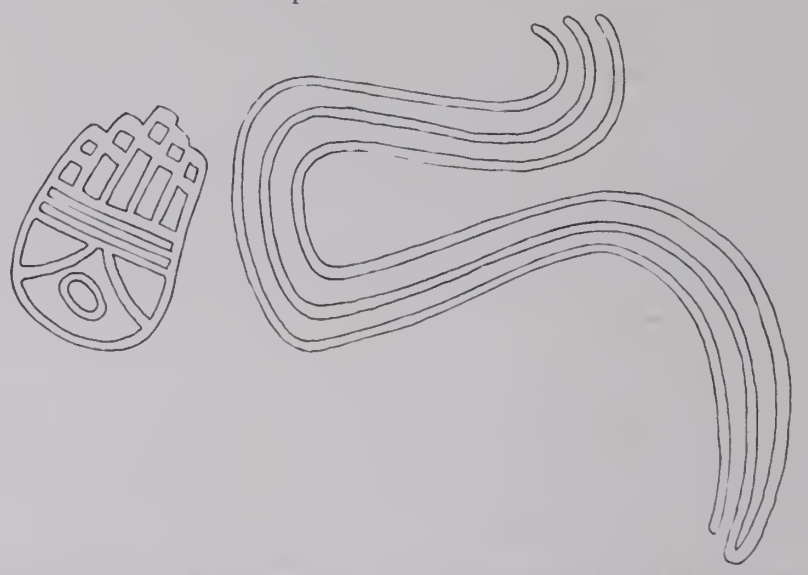


Fig. 2.—Decoration on part of vessel. Mound near Three Rivers Landing. (About half size.)

Seven inches down was a large pile of long-bones carefully placed parallel one to another. This pile, which represented several individuals, possibly five or six, slanted upward somewhat. Farther in the mound, in contact with the pile, were one skull, a pelvis, vertebræ, ribs, and a few other bones. On and above the upper part of the mass of long-bones were many fragments of what seemingly had been part of a large vessel of ware shell-tempered in places as if the powdered shell had been unevenly distributed. But little of the rim remained. The decoration, incised, probably consisted of a repetition of two symbols, one being a paw or perhaps an open hand (Fig. 2), and the other a leg.

Thirteen inches from the surface was another bundle of parallel long-bones, consisting of seven humeri, six radii, six ulnæ, seven femurs, seven tibiæ, and four fibulæ. At one end of this pile were the bones of an infant.

With its rim 8 inches below the surface, resting on its base, in which there is a mortuary perforation, was a bowl of inferior, shell-tempered ware, without decoration, except certain projections from the rim. The maximum diameter of the vessel is 12.5 inches; its height, 8.5 inches. In the sand which filled this vessel was part of the skull of a young infant. Here we have an urn-burial without a covering vessel, for, presumably, had a plough struck an upper vessel, the rim of the one below would not have escaped injury. Immediately under this urn-burial was a bunched burial consisting of bones belonging to two adults. Probably the apposition was accidental.

The fourth and southernmost mound was the smallest of all. Eight holes, carried below the base, showed it to be of yellow sand. The only object found was part of a human skull.

Mound near Payne's Woodyard, Clarke County.

This little mound, circular in basal outline, about 200 yards WNW. from the landing, on property of Mr. Jefferson Bush, living nearby, had a height of 4 feet, and a diameter of 40 feet. It was completely dug down by us with the exception of parts around two trees. The composition of this mound was interesting, it being one of the class found in this region and spoken of as "rock-mounds" by the inhabitants. It was composed of sand with a small admixture of clay, and contained a great number of masses of ferruginous sandstone placed together in various parts. These masses were often of irregular shape, but sometimes were triangular, oblong, or roughly circular, some no larger than the head of a child, others possibly seventy-five pounds in weight.

Fig. 3.—Vessel of earthenware. Mound near Payne's Woodyard. (Diameter 3.25 inches.)

Fig. 4.—Vessel of earthenware. Mound near Payne's Woodyard. (Diameter 6.5 inches.)

Apart from human remains, in various parts of the mound, were certain pebbles of a shape well suited for pebble-hammers, but showing no mark of use. As pebbles of similar form lay along the river bank, those in the mound may have been accidentally introduced.

Singly and apart from human remains was an imperforate bowl with rude line and punctate decoration (Fig. 3). Also away from burials was a bowl of perhaps two quarts capacity, of fairly good ware and highly polished (Fig. 4). The rim shows a certain thickening. On it and just below it are encircling lines of a decoration which at first glance one might think were made by a roulette, or notched wheel, of a kind figured and described by Holmes;[1] but on examination it may be seen that these punctate markings are at irregular distances apart. It becomes apparent, then, that as a pointed implement was trailed around the vessel, the impress of the point was made upon the clay. Around the body of the vessel, which has a mortuary perforation of the base, is a single, incised line.

There were also in this mound single fragments of vessels and parts of vessels in fragments, some undecorated, one with the interesting, incised decoration shown in Fig. 5.

FIG. 5.—Fragment of earthenware vessel. Mound near Payne's Woodyard. (Height 4.4 inches.)

One vessel, of which but comparatively small fragments were found, had been decorated in red pigment on the outside, or on part of the outside, and red pigment with incised decoration interiorly. All the earthenware found by us in this mound came from the eastern part —some near the margin, some farther in.

A small, rude cutting implement of chert lay in the sand.

Toward the center of the mound the grouping of masses of rock was more marked. Among these was the first burial found by us, consisting of three fragments of a femur and part of an ulna, 30 inches from the surface.

Almost exactly in a central position in the mound, 3.5 feet down, was the skeleton of an adult, partly flexed on the right side, with the skull badly crushed. It seemed as if a special arrangement had been accorded the masses of rock between which this skeleton lay, as large, flat slabs were above it, as well as below the head and chest.

[1] "Aboriginal Pottery of Eastern United States," 20th An. Rep. Bur. Am. Eth., p. 77.

Mounds near Carney's Bluff, Clarke County.

At the edge of the bluff overlooking the river, about one-half mile north from the landing, in full view from the road, was a symmetrical mound, circular in basal outline, on property belonging to Mr. P. A. Bryant, living nearby. Its height was 5.5 feet; its basal diameter, 46 feet. It had been dug into on the northern side to some extent, previous to our visit.

The mound, which was completely leveled by us, proved to be of sand mingled with masses of rock, similar to the one at Payne's Woodyard.

Fig. 6.— Vessel No. 1. Larger mound near Carney's Bluff. (Diameter 6.75 inches.)

In the sand were a number of pebbles; several arrowheads or knives, of quartzite, broken and whole; several bits of chert; a pebble showing considerable wear; and part of a flat, oval pebble with a central hole of considerable size, which may have been natural, though a roughness of the margin of the hole seemed to indicate that if not artificially made it had at least been enlarged. Several bits of earthenware bearing the small check-stamp lay in the sand.

Eight feet in from the margin of the mound, on the eastern side, 28 inches down, were a number of fragments, presumably of several vessels or of parts of vessels. With these were three vessels and a large fragment, as follows:

Vessel No. 1.—This vessel, of yellow ware, trilateral with circular aperture ornamented with notches, has an incised decoration as shown in Fig. 6. The mortuary base-mutilation is present.

Vessel No. 2.—An undecorated pot of inferior ware, of about three pints

capacity, with slightly flaring rim, parts of which rise above the rest at three irregularly distant points (Fig. 7). There is a basal perforation.

Vessel No. 3.—A curious vessel of coarse, yellow ware, that has had in relief, the head, arms, and hands, of a male figure. The right arm, now missing, with a hand of generous proportions, which still remains, crossed the body, the hand resting upon the left arm (Fig. 8).

The fragment was the lower two-thirds of an undecorated, globular vessel, with a hole knocked through the base.

Certain fragments found nearby belonged to a coarsely-made vessel, partly shown in Fig. 9. The lower part of another effigy-vessel, in many bits, was present in the mound.

Four feet nine inches down was a lone skull, much broken. The frontal part showed no flattening. No other skull present in the mound was in condition to furnish any indication as to cranial compression.

Two feet five inches from the surface were two femurs, one tibia, one humerus,

FIG. 7.—Vessel No. 2. Larger mound near Carney's Bluff. (Diameter 6 inches.)

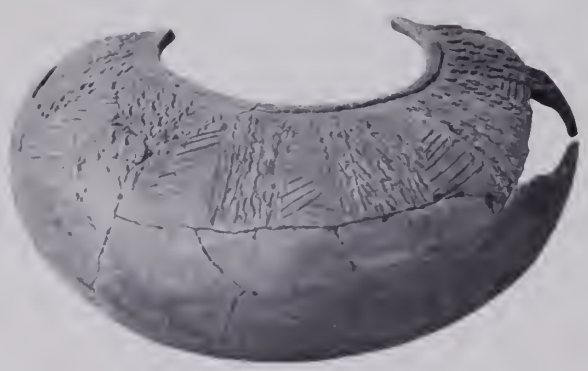


FIG. 9.—Fragment of vessel of earthenware. Larger mound near Carney's Bluff.

FIG. 8.—Vessel No. 3. Larger mound near Carney's Bluff. (Diameter 4.5 inches.)

one radius, one ulna, and certain crushed bones much decayed, also parts of a skull—evidently a bunched burial. Masses of rock lay at each side, and a slab, on its edge, was at one end.

Two feet from the surface were parts of a skull, badly decayed, also one femur, one humerus, one ulna, and one mandible. No rocks lay above this burial, but masses were nearby on the sides and below it.

Below the trench left by the previous diggers were: one lone skull; a skull in fragments, with remains of certain long-bones nearby; fragments of a skull and of a few other bones. These burials were not among masses of rock.

Five feet three inches from the surface was a skull with rocks all around it, having no particular arrangement.

Not far from the base, and almost in the center of the mound, was a skeleton closely flexed on the left side, not immediately associated with masses of rock.

No basal line was visible in this mound, and, therefore, to insure complete investigation, the digging was carried along at a depth considerably greater than the height of the mound, reaching to a depth of 8 feet at times. Almost immediately below the central part of the mound, its base about 9 feet from the surface, was what seemed to be a grave, though its limits on the sides were not distinctly defined. On the base of this grave, with many small fragments of charcoal scattered in the sand, was a skeleton partly flexed on the right side. No masses of rock lay immediately above this skeleton, but 4 feet above it, and continuing to the surface, was a great mass of slabs of ferruginous sandstone, closely piled.

In another part of the mound was a small layer of charcoal which did not seem to be associated with burials.

On the slope of a bluff about one-quarter mile north of the mound just described, also on property of Mr. Bryant, was a mound 5 feet 7 inches high and 30 feet across its circular base. There was no sign of previous disturbance. This mound, which was entirely dug away by us, proved to be of sand with but few masses of rock—practically none being met with in its outer half.

In the sand were three arrowheads or knives, found separately—two rudely made of quartzite, one more carefully fashioned from chert.

In the eastern part of the margin of the mound were fragments of about half of a small undecorated vessel. Several sherds lay here and there in the sand, probably having been introduced into the mound with the material for its building.

Twenty inches down in the outer part of the mound was a small bunched burial, including a much decayed skull, badly crushed.

Farther in, 4 feet from the surface, was a small bunched burial with which no fragments of skull were found.

Near the central part of the mound were two badly decayed skulls in close proximity. Near one of these were two round, flat pebbles of about equal size.

Two or three feet from the center of the mound, 3.5 feet from the surface, was a badly decayed skull.

Although the mound when measured by us showed a height of about 5.5 feet, yet, being on a slope, it is possible that a greater height was accorded by us than it was entitled to. At all events, what seemed to be a base-line ran through the mound, and this base-line was not more than 4 feet from the surface in the higher parts of the mound. A few feet west of the center of the base, beginning at the base and extending downward 3 feet, was a pit of irregular outline, having an average diameter of about 6 feet. At the margin of this pit were two skulls, together. In the upper part of the pit was much clay, and below the clay was black material, probably sand darkened by admixture of organic matter. In this black material were scattered a few small masses of ferruginous sandstone and a part of the base of an earthenware vessel, having one foot and a remnant of another. No human remains were encountered below the margin of this curious pit.

Mound near Gaines' Landing, Washington County.

About one-half mile by water up West Bassett Creek, on the right-hand side going up stream, on property belonging to Mr. Henry L. Gaines, of Mobile, Alabama, is a field lately used for the raising of cotton. In this field, which has been long under cultivation, was a slight rising of the ground, marking where a mound had been almost ploughed away. On the surface were scattered human bones. A circular area 30 feet in diameter was marked out by us and dug away to a depth of about 2.5 feet. The material was clay with a slight admixture of sand.

In several parts of the mound, just below the surface, were scattered human bones where burials had been disturbed during cultivation of the field. Slightly deeper was a large mass of long-bones, parallel with one another. At one end where the mass diminished somewhat in thickness, three skulls, in fragments when found by us, had been placed.

Immediately below the surface were the remains of three urn-burials, consisting of the lower parts of coarse, undecorated, shell-tempered bowls, in fragments but held together by the surrounding clay. Each of these bowls, from which, presumably, the rims had been ploughed away, contained human bones, and one had, in addition, several large fragments of a good-sized vessel of excellent ware, shell-tempered in places and bearing incised decoration, probably belonging to a surmounting vessel.

A stone, pitted on each side, lay alone in the clay.

Mound near Bolan's Woodyard, Washington County.

This mound, about half a mile in a westerly direction from the landing, is about 5 feet in height and 50 feet in diameter, approximately. We were unable to obtain permission to investigate it.

Mounds near Jackson, Clarke County.

About one-quarter mile in a straight line east of the railroad station at Jackson, in pine woods, were two mounds, in sight one from another. The northerly mound,

which had sustained practically no previous investigation, was 43 feet in diameter of base and 2 feet in height. Leaving untouched the outer 3.5 feet on each side of the mound, the remainder, having a diameter of 36 feet, was completely dug through by us, and as no burials were met with until we had gone a number of feet toward the center, it is not likely that anything was missed.

Human remains were found in eleven places, consisting of lone skulls, small bunches, and fragments of bone, all in the last stage of decay.

Found singly, and apart from human remains, in the mound were various imperfect arrowheads; also six entire arrowheads or knives—five of quartzite, one of chert, all rudely wrought.

Presumably having been with a skeleton which had decayed away was an ornament of corrugated sheet-copper (Fig. 10). This type of ornament is more fully described in our account of the shell deposits at Blakeley, Mobile bay.

With a bit of long-bone, having two or three fragments of bone at a certain distance, were, neatly piled together, fourteen arrowheads and knives—twelve of quartzite, two of chert, all unbroken, with one exception. Separated from these by a short distance was a rough arrowhead or knife of quartzite, and an incomplete arrowhead of chert.

With a lone skull were eight arrowheads and knives—seven, entire, of quartzite, one, incomplete, of chert.

At the center of the base of the mound, as nearly as could be determined, was a small bunched burial having two skulls. With this burial was a knife of quartzite; a barrel-shaped bead of earthenware, 1.5 inches long; and a toy-bowl of a soft claystone, about 1.75 inches in diameter. This little toy, interestingly enough, has a mortuary perforation in the base.

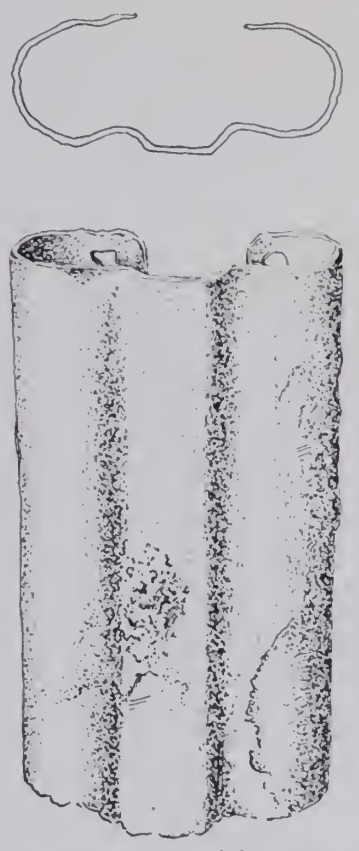


Fig. 10.—Ornament of sheet-copper. Mound near Jackson. (Full size.)

The second mound, exceeding twice the height of the other and of about the same diameter, had been badly dug into previous to our visit. Four considerable holes made by us and enlargement of the earlier one yielded nothing.

Mounds at Jackson Landing, Clarke County.

At Jackson Landing, within the limits of the large saw-mill of the C. W. Zimmerman Manufacturing Company, of which Mr. C. W. Zimmerman, of Jackson, is president, are remains of two mounds which extensive digging by us showed to have been domiciliary, presumably.

Mound in Kimbell's Field, Clarke County.

Kimbell's field, long under cultivation, controlled by Mr. T. I. Kimbell, executor, of Jackson, is about 300 yards northwest of the Zimmerman sawmill at Jackson Landing. The mound, which had been much ploughed over, showed no sign of previous digging. Its height was 5 feet; the diameter of its circular base, 48 feet. It was completely dug away by us, its composition being a mixture of sand, clay, and gravel.

Human remains were met with in forty-five places, the deepest being 3.5 feet from the surface. All bones were in the last stage of decay and crumbling to bits. The burials were as follows:

Isolated skulls—23.

Bunched burials, with a skull but without the full complement of the skeleton—8.

Small bunched burial with two skulls—1.

Small bunched burial without skull—1.

Skull and one long-bone—1.

Skull and two long-bones—1.

A few long-bones together—1.

A single long-bone or a fragment or fragments of one—8.

The remaining burial of the forty-five, 22 inches from the surface, consisted of a skull and certain long-bones. With these were charcoal and less than a handful of bits of calcined bone, the fragments too small to be positively identified as human, though probably they were.

With a fragment of femur was a neat pebble-hammer. With an isolated skull was a mass of mica, roughly elliptical, 6 inches by 7 inches, with a central perforation and a place nearby where another perforation had been unskilfully made or attempted and abandoned.

Unassociated with human remains and found singly were the upper part of a sheet-copper ear-plug of the ordinary type; four arrowheads, three of quartzite, one of chert; a cutting implement wrought from a large quartz pebble; two leaf-shaped implements of quartzite, lying a short distance apart.

A few bits of pottery lay here and there in the mound, some undecorated, some with the small check-stamp, one with lined decoration, another with lined and punctate marking.

In the western margin of the mound was a small, undecorated, imperforate bowl (Vessel No. 1), placed upright in part of another undecorated bowl. Both are of inferior ware.

In the eastern margin, lying mouth down, was a gourd-shaped vessel of excellent ware (Vessel No. 2), with oval aperture, and having a mortuary perforation. There are three annular decorations in relief emphasized by a surrounding depression (Fig. 11).

Much farther toward the center of the mound was Vessel No. 3, in fragments. This vessel, pieced together, is imperforate as to the base, and has a semiglobular body with an octagonal rim bearing punctate decoration, probably made in this instance by a trailing point and not with a roulette, or notched wheel (Fig. 12).

FIG. 11.—Vessel No. 2. Mound in Kimbell's Field. (Diameter 6.75 inches.)

FIG. 12.—Vessel No. 3. Mound in Kimbell's Field. (Diameter 5.4 inches.)

FIG. 13.—Vessel No. 4. Mound in Kimbell's Field. (Diameter 9 inches.)

FIG. 14.—Vessel No. 5. Mound in Kimbell's Field. (Diameter 5.25 inches.)

Toward the center of the mound, together, were five vessels of inferior ware lying above a deposit of human bones, though, as burials were numerous in that part of the mound, the vessels may not have been connected with the remains.

These vessels are as follows:

Vessel No. 4.—This vessel, of yellow ware, and in fragments, since cemented together, has a mortuary perforation of the base. Somewhat below the rim, which has one small projection, is an encircling band made up of a design, four times displayed, consisting of a circle having on each of two opposite sides a pointed oval as shown in Fig. 13. Possibly these emblems in conjunction are a highly conventionalized bird-form. The feather symbol, often found on bird-vessels, upright, forms part of the design at each side.

Vessel No. 5.—This vessel, semiglobular, imperforate, with thickened rim, bears a small check-stamp decoration (Fig. 14).

Vessel No. 6.—A perforate pot with small check-stamp decoration (Fig. 15).

Vessel No. 7.—An undecorated jar having a basal mutilation (Fig. 16).

Vessel No. 8.—A bowl of considerable size, of inferior ware, found in many fragments. The only decoration consists of two encircling, incised lines below the rim.

FIG. 15.—Vessel No. 6. Mound in Kimbell's Field. (Diameter 5 inches.)

FIG. 16.—Vessel No. 7. Mound in Kimbell's Field. (Diameter 4.9 inches.)

Shell-tempered ware was not present in this mound.

At or near what seemed to be the center of the base of the mound, was a pit, roughly circular, apparently beginning at the base, where its diameter was about 5 feet, and converging downward about 20 inches. This pit, which contained no human remains, was filled with the material composing the mound, but colored black with admixture of organic matter. In this material were very many small masses of ferruginous sandstone.

MOUND OPPOSITE PEAVEY'S LANDING, CLARKE COUNTY.

This mound, in sight from the river, is at a nameless landing directly opposite Peavey's Landing, on the other side of the river. The mound, 10 feet in height, formerly oblong in outline, is now irregular from wash of water in flood-time. Its basal diameters are 125 feet NNW. and SSE., and 90 feet ENE. and WSW. The summit plateau is 55 feet by 40 feet in corresponding directions. As the mound evidently was domiciliary, and as its destruction could not be permitted owing to

its advantage as a place of refuge for cattle in high water. investigation was restricted to making a considerable number of holes in the summit plateau to learn whether or not superficial burials had taken place in the mound. Neither human remains nor artifacts were met with. The digging, so far as it went, showed the mound to be of clay.

Mound near Santa Bogue Creek, Washington County.

This mound, in a cultivated field about one-half mile in a southerly direction from the mouth of Santa Bogue creek, was about 1 foot in height and 48 feet in basal diameter. Careful investigation showed the mound to be of sand with a slight admixture of clay. It yielded no material result.

Mound near Malone's Gin, Clarke County.

This mound, on property of Mr. J. M. Deas, of Coffeeville, Alabama, in a cultivated field, about three-quarters of a mile SSE. from the landing, is of irregular outline, its length being 40 feet and its maximum breadth, 28 feet. Its height is 1 foot. A few fragments of charcoal and one or two bits of pottery alone showed the mound, which was of clay, to be of artificial origin.

Near the river bank, below Malone's Gin, are several small shell deposits made up principally of *Quadrula heros*, *Q. pernodosa*, *Q. trapezoides*, *Q. ebena*, *Q. metanevra*, *Lampsilis purpuratus*, *L. claibornensis*, *Obliquaria reflexa*, *Truncilla penita*, *Unio gibbosus*. Scattered over adjacent fields are flakes and small masses of chert; pebble-hammers; bits of quartz; masses of ferruginous sandstone, pitted on each side; arrowheads and knives of quartzite; cutting implements and irregular masses of the same material; fragments of inferior pottery.

Mound near Bass' Landing, Choctaw County.

This mound, in a cornfield, the property of Mr. D. B. Bass, of Bladen Springs, Alabama, is in full view from the river, about one-half mile below Bass' Landing. The mound, which apparently had been subjected to much wash of water, had an irregular outline with basal diameters of 45 feet and 32 feet. Its height was 3 feet 7 inches. Thorough digging showed the mound to have been made of a mixture of sand and clay, with much more sand in some parts than in others. No remains of any kind were discovered.

Mound near Cox's Landing, Clarke County.

This little mound, beautifully situated on the edge of the bluff immediately above the landing, on property of Mr. J. W. Nichols, of Manistee, Alabama, had a basal diameter of 26 feet and an apparent height of but 2 feet. No sign of previous examination was evident. It was entirely dug down by us with the exception of parts around two trees.

Human remains, encountered at the very margin, were found in thirty places, at a depth of from 1 foot to nearly 3 feet. The burials, badly decayed, resembled those found in the mound in Kimbell's Field, lone skulls and mere fragments of long-bones constituting separate interments. In one case decay had gone so far that only a few teeth were present.

With a skull and a bit of long-bone was a mass of galena, about 1.5 inches by 1 inch by .75 inch. Another mass, about double that size, lay with an isolated skull. Galena, lead sulphide, assumes a new importance in the mounds since we know from our investigations at Moundville on the Black Warrior river that the carbonate of lead which forms on the lead sulphide, probably was used as a paint.

A few bits of inferior pottery, a flake or two of chert, several flakes and masses and broken arrowheads, of quartzite lay in the mound apart from human remains.

At some distance from the center, sand slightly darker than that of the mound, and containing scattered fragments of human bone, was noticed. This discolored sand suggested the presence of a pit, but as it seemed to merge more or less with the sand around it, definite limits could not be determined. No base-line was met with in this mound, hence it is impossible to say whether or not a pit found beneath the sand we have described was connected with it or not. Had there been a base-line and that line had been cut through, it would have been evident that the black sand above and the pit below formed parts of the same excavation. In the pit, 5 feet 3 inches from the surface of the mound, was a deposit of sand, 5 feet in length, 3.5 feet in breadth, and 1.5 feet deep, deeply blackened by organic matter. In it were bits of pottery having no relation one to another—not a vessel broken and thrown in. For a certain distance above this dark deposit were scattered, small bits of charcoal.

Dwelling site at Thornton's Upper Landing, Clarke County.

Near this landing, which is 133 miles by water from Mobile, on property of Mr. E. L. Long, of Mobile, and Mr. J. P. Armistead, of Coffeeville, Alabama, are small shell deposits consisting mainly of two vivipara, namely, *Campaloma ponderosum* and *Tulotoma magnifica*, the latter peculiar to the Alabama river system, and several Unionidæ, including *Quadrula cornuta* and *Q. pernodosa*.

The neighboring fields are strewn with the usual debris of dwelling-sites. We gathered a heart-shaped mass of sandstone, pitted on each side, and another, more roughly made, having five pits.

Mound near Powe's Landing, Choctaw County.

This mound, through which a road had been dug, was on property of Mr. H. A. Powe, of Bladen Springs, Alabama, about one-quarter mile below the landing, on the river bank. The mound originally had been about 5 feet high and about 48 feet across the base. The remnants of this mound were dug into to a considerable extent by us without discovery of human bones or artifacts.

Mound near Noble's Gin, Clarke County.

In a cultivated field, the property of the Mobile Lumber Company, of Mobile, was a mound about one-quarter mile above the gin, near the river's bank. This mound, which, evidently, had long been under cultivation, was much spread by the plough and probably reduced in height at the same time. It resembled an irregular ridge 85 feet long. At the narrower end it was 36 feet across. At 55 feet from the latter end it was 49 feet across, its maximum width, and there attained its greatest height, 4 feet 3 inches.

In the surrounding field, the surface of which had been disturbed by the plough and by wash of water in a recent flood, were flakes and small masses, of quartzite, in all directions, but, curiously enough, no fragment of pottery was noticed, although careful search was made.

This mound, which was completely leveled by us, made of clay having a certain admixture of sand, seemingly had not been dug into before our visit, except to place four posts for a small shed for cattle. Near the margin were a few fragments of pottery, bearing a small check-stamp. Farther in were several bits of ordinary ware, undecorated, and one sherd bearing a series of parallel, incised lines. In the marginal parts of the mound, perhaps surface deposits ploughed under, were a number of bits of quartzite and several broken arrowheads; four rough cutting implements; six arrowheads, possibly knives, all quartzite. One arrowhead was rather neatly made, being serrated and having one side flat, the other convex. Under the shed, where probably the material from the post-holes had been thrown, was a small "celt" and a neatly-made gouge of volcanic stone, with a sharp edge concave on one side. With a lone skull was a neatly-made "celt" of volcanic stone, 7 inches long.

No human remains were met with until the outside 10 feet of the mound had been dug away, and burials were infrequent until more central parts of the mound had been reached. There were present, all in the last stage of decay, seventeen burials, from 6 inches to 38 inches below the surface, as follows:

Lone skulls—6.

Small bunches without skulls—5.

Small bunches with skulls—5.

A single femur—1.

With one burial was a quantity of sandy clay colored with red pigment; and in another place, where no burial was found, the clay was reddened where possibly a burial had disappeared through decay.

Mound below Bashi Creek, Clarke County.

About one mile below the mouth of Bashi creek is a cultivated field belonging to the Mobile Lumber Company, of Mobile. About one hundred yards from the river, in this field, is a mound of irregular basal outline, apparently much spread by cultivation and at the same time reduced in height. On the surface of the mound

and in the large surrounding field were many flakes and chippings, mainly of quartzite; and on the mound were small bits of inferior earthenware. The present measurements of the mound are: basal diameters, 220 feet east and west; 180 feet north and south; height, 6.5 feet.

Many excavations yielded two arrowheads or knives, of quartzite, and one of chert. One fragment of bone was met with, too much decayed for identification.

Mound near Bashi Creek, Clarke County.

In a field formerly under cultivation, about one-quarter mile in a southeasterly direction from the mouth of Bashi creek, on property of the Mobile Lumber Company, was a mound that evidently had lost parts of two sides through the agency of the plough. Previous visitors had left a hole in the central part, 3 feet by 4 feet, by 4 feet deep. The mound, which was entirely dug down by us, consisted of a mixture of clay and sand. Its height was a trifle more than 5 feet; its basal measurements, 25 feet by 34 feet.

Human remains were encountered in twelve places, one burial being more than 4 feet deep. The burials, with one exception, resembled in form those in mounds lately described by us, and were fragmentary and badly decayed. Just beneath the surface were a number of bones together, having under them fragments of what had been a vessel or a large part of a vessel of considerable size. The ware, shell-tempered, was inferior and undecorated. Here, doubtless, were the remains of an urn-burial.

With one burial were two flakes of chert.

The bones in this mound were so badly decayed (in one case one fragment only being present with a few teeth), that it is hard to say whether or not objects found alone had been with burials originally. In addition to many flakes, chippings, and small masses of rock, there were in the mound, singly and apparently away from bones, twelve cutting implements, lances, arrowheads, and knives, all of quartzite except one of red chert. There were also in the mound an interesting implement, apparently an arrowhead or knife, utilized as a drill after breakage, an ellipsoidal pebble-hammer, and a ball of granitic rock, about 2.5 inches in diameter.

Lying closely packed together was a deposit of fifty masses of sandstone and of ferruginous sandstone, from the size of a fist downward, together with a slab of the latter stone. A neatly-made smoothing-stone of fine-grained, ferruginous sandstone, apparently shaped to be held in the hand, lay alone.

Fig. 17.—Sherd. Mound near Bashi creek. (About full size.)

While the surface of the surrounding field was strewn with fragments of stone, practically no pottery was in evidence, and in the mound almost an equal scarcity of earthenware was noted. Of several bits met with, one bore the small check-stamp; another, the novel, incised decoration shown in Fig. 17.

About 16 inches from the surface were a number of small fragments of sheet-copper, corroded through and through. On the base of the mound was a copper ear-plug of the usual type or, more correctly speaking, the outer part of the ear-plug was present, that part which was worn behind the lobe of the ear, serving to hold the outer part in place, being missing. Possibly this part had been of some perishable material. Various materials, doubtless, were utilized by the aborigines for the rear portion of the ear-plug. In Florida we found ear-plugs with discs of sheet-copper to be worn in front of the ear, which had been attached to circular bits of earthenware for use behind the lobe.

Just below the surface, together, were two outer halves of ear-plugs of sheet-copper, with beaded margins.

Mound on the Watters' Plantation, Marengo County.

The Watters' plantation, the property of Mr. J. A. Watters, of Mobile, is on the eastern side of the river, opposite Brown's Landing. The mound, 5 feet high and 54 feet across its circular base, is but a few feet from the water's edge, in a cultivated field. There was no sign on the surface of previous digging, the mound presenting a peculiarly uniform and rounded appearance. Later, however, evidence that one or two narrow and superficial holes had been made and refilled, became apparent. As the mound was suitable as a refuge for cattle in flood-time, a marginal part 10 feet in diameter on all sides was left untouched by us, and the part enclosed by this, 34 feet across, was completely dug away at a level somewhat below that of the base of the mound. In this way that part of the mound most exposed to wash of water was left intact, and this was accomplished presumably with no loss to ourselves as nothing material was met with until considerable digging had been done, the first burial found being 5 feet in from where the excavation was commenced. The mound was composed of sand with a small admixture of clay.

At the beginning of our digging, 3.5 feet down, on the base, which was clearly marked in this mound, we came upon a fire-place. We cannot say how far this fire-place extended outward, but when uncovered by us it was present along the circumference of the northern half of the mound and continued in for about 6 feet. It was marked by burnt earth and a layer of charcoal with a maximum thickness of 1.5 inches.

Scattered through the mound were the usual fragments of quartzite; eight arrowheads, knives, scrapers, and drills, of the same material; and one neat little bird-arrowhead of chert, somewhat broken. A few bits of earthenware were scattered through the mound, chiefly undecorated, though two or three bore the small check-stamp.

Human remains were encountered in thirty-two places, mainly in the more

central parts of the mound where were all entire skeletons. The bones, badly decayed, were found from the surface to the base, while one skeleton lay in a pit more than a foot below the base, or more than 6 feet from the surface. The forms of burial were as follows:

Lone skulls—8.

Small bunches with a single skull—2.

Small bunches without skull—6.

Fragments of bone—2.

Skeletons flexed on the right side, including one of an adolescent—4.

Skeletons flexed on the left side, including one of an adolescent and one of a child—6.

Skeleton full length on back—1.

Ten inches below the surface was the lower part of a skeleton, flexed on the left side, extending to the upper part of the thorax. Scattered bones of the upper part lay around. This, probably, was a recent disturbance.

A skull and part of an arm bone lay 29 inches from the surface, in a part of the mound where burials were numerous and where an aboriginal disturbance might have been looked for.

A skull with scattered bones lay 1 foot down.

This completes the list of thirty-two burials.

Behind a flexed skeleton already noted, lay many disarranged bones.

One of the flexed skeletons had resting on the leg bones the skull of a child.

Two of the flexed skeletons in this mound were more closely drawn together than are those we usually call flexed, and verged on the closely flexed.

The lower extremities of a flexed skeleton showed marked pathological changes. A femur, tibia, and fibula belonging to this skeleton have been sent by us to the Army Medical Museum at Washington. The corresponding bones of the other side were badly broken in digging.

In the central part of the mound, separate, were five skeletons associated with charcoal. One of these skeletons had earth colored with red pigment on the trunk, extending to the pelvis, and considerable charcoal near the head. Charcoal was at the head of another skeleton and at the feet of a third. The position of the charcoal in the two other instances is not given in our field-notes.

Near certain scattered bones was a neatly made arrowhead of cehrt.

A flexed skeleton had with it, together, one jasper pebble; two pebbles of the same material, somewhat broken; a drill fashioned from a pebble of jasper; a drill of quartzite; a pointed implement of the same stone, perhaps a drill; a roughly made or unfinished implement; and the end of a rude, pointed tool, the latter two of quartzite.

A flexed skeleton of an adolescent had many shell beads at the neck.

Lying near the pelvis of a skeleton of a child, together, were a piercing implement made from the cannon-bone of a deer; a bone of a raccoon; a quartz pebble; and a pointed fragment of quartzite. With this deposit, curiously enough, con-

sidering that it lay with the bones of a child, where careful search showed no other bones to be near, was a smoking-pipe of earthenware, of the usual type of this region as to form, but of considerably better ware than is looked for in this part of

FIG. 18.—Pipe of earthenware. Mound on Watters' Plantation. (Height 4.12 inches.)

the country when pipes are concerned. The only decoration is an incised, encircling line around the bowl (Fig. 18). Within the pipe was a small, neatly-made fish-hook of bone.

MOUND BELOW HORSE CREEK, CHOCTAW COUNTY.

Another plantation owned by Mr. J. A. Watters is on the west side of the river, about 174 miles by water from Mobile. The plantation, not in the neighborhood of any particular landing, is about one-half mile below the mouth of Horse creek, which enters the river, however, on the opposite, or eastern, side, in Marengo county.

The mound, in a cultivated field, though itself showing no sign of the plough, within 30 yards of the river and parallel with it, is a fine example of a small domiciliary mound, being perfectly square with a flat summit plateau. The diameter of the base is 62 feet; that of the summit plateau, 44 feet. The height is 4 feet 9 inches.

Although it was evident from the shape of the mound that it was constructed for domiciliary purposes, yet to assure ourselves and to detect any surface burials, a considerable part of the mound was dug away. No bone or artifact was encountered.

Mounds below Beaver Creek, Marengo County.

In woods, almost at the water's edge, about one mile below Beaver creek, on property of Mr. Joseph H. Compton, of Nanafalia, Alabama, were four small mounds. These mounds were completely dug down by us with the exception of part around a tree in one mound and of certain marginal portions in all the mounds, which seemed not to have belonged to them originally, but to be due to wash of water. As no bones or artifacts were found until considerable digging had been done by us, it is probable our estimate was a correct one.

The southernmost mound was about 40 yards distant from its nearest neighbor. Its height was 3 feet 3 inches; the diameter of its circular base, 45 feet. Near the eastern side was a deep depression whence material for the mound had come. Previous diggers had left a shallow trench, 5 feet in width, extending inward 19 feet from the eastern margin. Along this trench and in material thrown from it were small fragments of human bones.

The mound, which contained much more sand in the upper than in the lower part, seemingly had been built on a dwelling site which contained the usual debris, including fresh-water mussel-shells (*Lampsilis rectus*, *L. purpuratus*, *L. anodontoides*).

From the mound came pebble-hammers, pebbles, chips of quartzite, small masses of fossil wood, a quantity of limonite with the surface transformed into hematite, and a pebble much worn as a smoothing implement. But few bits of earthenware were met with, and these are of inferior quality. In but two or three cases had there been attempt at decoration, and this, rudely done, is of the kind known as cord-marked, which, as Professor Holmes[1] has shown, is made with the aid of a cord wrapped around a wooden paddle.

Human remains, decayed through and through, were met with in six places, in addition to the fragments of bone referred to as lying near the trench. These burials are as follows:

Burial No. 1.—A fragment of a skull.

Burial No. 2.—A skeleton lying at full length on the back, 2 feet below the surface, with charcoal under it and extending somewhat beyond it.

Burial No. 3.—Four feet from the surface, with charcoal above it, was a full-length skeleton on its back, having near the skull, grouped together, six fragments of quartzite, three of which, fairly sharp at one end, may have seen service as drills. With these were one bit of sandstone, a small jasper, arrowhead, and part of what may have been an implement of bone. On the thorax of this skeleton lay a spearhead or dagger, of quartzite, 7.25 inches long by 2.25 inches wide.

Burial No. 4.—Immediately by the side of Burial No. 3 was an elongated bunch of bones beneath charcoal.

Burial No. 5.—On a layer of charcoal, 3 feet from the surface, lay a skull, with a pair of femurs 2 feet distant.

Burial No. 6.—A skull and certain scattered bones lay 20 inches from the surface, with charcoal beneath them.

[1] "Aboriginal Pottery of Eastern United States." 20th Ann. Rep. Bur. Am. Ethn., p. 73.

The next mound, elliptical in contour, was 36 feet long by 27 feet in maximum width and somewhat less than 2 feet high. It showed no mark of previous digging. This mound was composed of sand mixed with a considerable proportion of clay, and midden refuse lay at the base. One full-length skeleton, lying on the back, was the only occurrence of human remains. An implement of chert, about 5 inches long, probably a knife, showing a flat cleavage on one side and considerable work on the other, lay alone in the earth, as did a pointed implement of quartzite.

The next mound was practically in contact with the one to the south of it. Its height was 4.5 feet; the diameter of its circular base, 40 feet. It was almost of pure sand, no midden refuse lying on the base.

Human remains, all badly decayed, were three times encountered.

Eighteen inches down were the remains of a skull and fragments of a long-bone.

All that was left of what had been a burial flexed on the left side, lay 15 inches from the surface.

At a depth of 18 inches were fragments of what had been a skeleton at full length on the back.

This mound, which was symmetrical and practically untouched previously, surprised us by the paucity of its yield.

The fourth mound was about 60 yards farther north. Its base, roughly circular, had a diameter of 30 feet; its height was 3 feet. This mound, almost of pure clay, was completely dug away with the exception of the part around a large tree to which reference has been made, without discovery of artifact or bone.

Mounds near Mouth of Beaver Creek, Marengo County.

In thick swamp, which is under water in high stages of the river, about one-half mile in an ENE. direction from the south side of the mouth of Beaver creek, on property of the Misses Luther, of Luther's Store, Alabama, is a group of fourteen mounds, according to our count, though possibly some escaped us. These mounds, of sand, in close proximity one to another, have circular bases as a rule, though some are slightly elliptical. Among the mounds are many steep depressions whence sand for the building of the mounds was taken, and, in obtaining measurements of height, it is wise to be on level ground and not in one of these depressions, lest undue altitude be accorded the mounds. In size these mounds vary considerably. The largest has basal diameters of 38 feet by 33 feet, and a height of 4 feet 8 inches. The smallest mound, excluding certain insignificant elevations as to the nature of which we are not sure, has a basal diameter of 23 feet and a height of about 2 feet.

As all these mounds serve as a refuge for cattle when the swamp is under water, it was not our wish to destroy them; therefore, the four southernmost mounds, three of the largest and one of the smallest, were dug out centrally to

their bases, the excavations having, respectively, diameters of 16 feet, 17 feet, 12 feet, and 11 feet. These excavations afterward were carefully refilled.

Not a single fragment of earthenware was met with in the mounds, nor were the usual bits of stone present. One rough piercing implement of quartzite lay alone, as did a flat pendant of slaty stone, about 3.75 inches in length, with an elongated, pear-shaped outline.

Human remains were hopelessly decayed. In one mound were: what was left of a skeleton lying at full length on the back; a skull and two small fragments of long-bone; and a skull, two scapulæ and, perhaps, parts of two humeri with another skull 5 inches lower. On the base of this mound was a skeleton lying at full length on the back. Near the skull were seven ordinary river pebbles, eighteen fragments of pebbles, one small arrowhead of jasper, one rude, pointed implement of quartzite, and one fragment of shell. With these were two fragments of a jaw of a wildcat, kindly identified for us by Prof. F. A. Lucas.

In another mound was a lone skull 18 inches down, and, lying on what we judged to be the center of the base of the mound, traces of a full-length burial.

A third mound had a lone skull 16 inches from the surface and, centrally on the base, a skeleton flexed on the right side with a bunch of bones beside it, including three skulls.

The only human remains met with in one of the three largest mounds were parts of a skull.

This grouping together of a considerable number of small mounds, which is first met with at this place, going north on the Tombigbee, is noted here and there, following the river for a distance of seventeen miles until Bickley's Landing is reached, where, in 1901, we found forty small mounds together. Above this point such groups of small mounds are not encountered on the Tombigbee.

Mounds near Breckenridge Landing, Marengo County.

In high swamp, about one-half mile NNE. from the landing, at and near a settlement of colored persons, is a group of small mounds on property belonging to Messrs. J. D. Carter and Brother, of Myrtlewood, Alabama. Certain of these mounds are in thick brush, some in open woods, a few in a cultivated field; others are immediately in the settlement. It is our belief that we failed to make an entirely accurate count of these mounds. Presumably some escaped our enumeration and others were twice included. At all events, the mounds number between forty and fifty—certainly more than forty. In height they range between 1 foot and slightly less than 6 feet, though the latter height is exceptional. In basal diameter the mounds are between 15 feet and 45 feet. We did not note at this place the presence of shallow pits or of deep depressions whence material had been taken, which were so numerous in the group of mounds near Beaver creek.

As these mounds are resorted to by cattle when the river overflows its banks, we felt constrained to limit our investigation of them to the method we had adopted with the mounds near the mouth of Beaver creek—by excavating the central por-

tion of certain of the mounds down to the base, and afterward returning the material.

Eight mounds, all of sand with a slight admixture of clay, were treated by us in this way. The few scattering sherds met with are of inferior ware, are not shell-tempered, and, where decorated at all, bear a cord-marked impression, with one exception, which has the small check-stamp.

All bones in these mounds were badly decayed. There was one noticeable feature as to burials; skulls had been placed to the east of the bones they accompanied, whether the burial was what was left of a skeleton or was of the bunched variety.

Mound Number 1.—This mound, measuring 4 feet 6 inches high, and 29 feet across its base, had a core 10 feet in diameter dug from its center by us. An arrowhead of quartzite lay apart from bones. Nine inches from the surface, centrally in the mound, were a skull, two femurs, and a fragment of a small bone.

Mound Number 2.—Height, 2 feet 8 inches; diameter, 24 feet across its circular base. The diameter of the portion excavated was 10 feet. A skull lay 28 inches from the surface. At the same depth, but some distance away, were fragments of bone, probably human. Near the skull was a nest of pebbles evidently carefully selected, as each was nearly round and about the size of a small pea. Presumably they formed part of a rattle, the turtle-shell belonging to which had decayed away. With the pebbles were six small arrowheads of jasper, rather roughly made; a neat drill wrought from a jasper pebble, still showing the rough surface of the stone on its base; also eight pebbles and bits of pebbles.

Mound Number 3.—Height, 5 feet 6 inches; diameter, 33 feet; diameter of portion excavated, 16 feet. Centrally in the mound, 2 feet down, was a skull with two phalanges nearby. Next came a space devoid of bones or artifacts, and then a pelvis and two femurs in line as if they belonged to a skeleton from which the ribs and vertebræ had been taken or had disappeared through decay. Beside the skull was a considerable deposit, as follows: three "celts," 10 inches, 7 inches, 3.75 inches, in length, respectively, one of volcanic rock, two presented to the owner of the mound without identification; three cannon-bones of deer; four pebbles, each about the size of a child's fist, three apparently used as smoothing-stones, one probably as a hammer; a mass of what chemical analysis has shown to be glauconite, or green earth, which takes its color from iron in the ferrous state, presumably used as a paint; fragments of fresh-water shells; six small, barbless fish-hooks of bone, all more or less broken; five small arrowpoints, four of jasper, one of quartzite; one bit of pottery; 37 pebbles, bits of pebbles and small masses of stone, all jasper or quartzite; an unidentified object, perhaps a fossil; a foot-bone of a deer; a piercing implement of bone; four masses of red, or brick, clay; a claw not affording features for positive identification; part of a jaw of a wildcat; an incisor of a beaver; a tooth of a woodchuck; a penis-bone of an otter; the foot-bones of a large

panther (*Felis concolor*). The last five identifications kindly were made for us by Prof. F. A. Lucas.

Centrally, on the base of the mound, was a bunched burial, including certain bones of a child. At the eastern end of the deposit were two adult skulls and one belonging to a child. With these were a few cylindrical, shell beads, each about an inch in length.

Mound Number 4.—This was situated in a cleared field, and had been ploughed over to some extent. Its height was 4.5 feet; its major and minor diameters 46 feet and 36 feet, respectively. This mound, which was almost surrounded by a shallow trench, was completely leveled by us. About 3 feet down, considerably to one side of the center, was a burial similar to one we have described before as found at this place, where a space without bones lay between the skull and the pelvis. From the pelvis two femurs and two tibiæ extended in proper order. Probably the foot-bones were dug away by our men. On or near the center of the base, 43 inches down, was a skeleton flexed on the right side. Back of the skeleton was a bunched burial having one skull. Over this burial, but not over the skeleton, was charcoal.

Mound Number 5.—Height, 1 foot 10 inches; basal diameter, 19 feet; portion centrally dug out, 12 feet. Twenty-two inches down were a skull, then a space without bones, and then, on the same level, a pelvis with two femurs in place extending from it. Near the skull, the earth was colored red. In a deposit along side were: one pebble; one arrowhead of quartzite; five small arrowpoints of jasper; part of an undecorated smoking-pipe of an ordinary type, and a mass of clay material. On top of the skull lay a badly-decayed bone of a lower animal, and a lancehead of quartzite, 4.5 inches in length.

Mound Number 6.—Height, 1 foot; diameter, 16 feet; portion excavated, 11 feet across. Ten inches down were a skull, a fragment of scapula, two humeri, part of an ulna, and a bit of bone on the other side of the skeleton where the forearm would have been. Next came a pelvis in position and at a proper distance from the skull. Extending from the pelvis were two femurs. Near the skull were a small, unbarbed fish-hook of bone, grooved for a line at one end; several small bits of pottery and a few chippings from pebbles. With this material were two human phalanges.

Mound Number 7.—Height, 1 foot 6 inches; diameter, 19 feet; a core 12 feet across was dug out by us. In it were a lone skull and several fragments of pebbles.

Mound Number 8.—Height, 1 foot 8 inches; diameter, 21 feet; 11 feet of the inside dug out by us. Just under the surface was a deposit consisting of a good-sized arrowhead of quartzite; one bit of pottery; 29 fragments of pebbles; two

bits of animal bone, badly decayed; a diminutive arrowhead of jasper; a neat drill made from a jasper pebble; a piercing implement of bone. At a depth of 1 foot, and 1 foot distant from the deposit just described, was a skull, followed by a space occupied only by a fragment resembling part of an arm-bone. Next came a decaying bit of pelvis and two femurs rightly placed, having two tibiæ flexed back.

About one mile from Breckenridge Landing, in a SE. direction, is a group of about twenty small mounds which the owner is unwilling to have investigated.

Mound near Steiner's Landing, Choctaw County.

About one-half mile in a southerly direction from Steiner's Landing, on property of the Allison Lumber Company, of Bellamy, Alabama, about 50 yards from the water, was a mound of elongated oval outline, that had long been under cultivation. Fragments of bone lay here and there on the surface. Its length was 54 feet; its maximum width, which was at 39 feet from the narrower end, was 34 feet; here also the mound attained its maximum height, 2.5 feet. The mound, which showed no sign of former digging, but was completely leveled by us, was composed of sand with an admixture of clay. In it, apart from human remains, were several jasper pebbles; one arrowhead or knife, of quartzite; and a small arrowhead of jasper. On the surface lay an arrowhead of quartz. A few bits of inferior ware, without shell-tempering, were scattered throughout the mound. Decoration, when present, was of the cord-marked kind previously referred to. An undecorated smoking-pipe of earthenware, of the type common to this region, which unfortunately was shattered by a blow from a spade, lay apart from burials.

In the higher part of the mound, 2 feet from the surface, lay what was left of a skeleton which had been at full length on the back. Over the trunk was charcoal. Near the head were two broken pebbles of jasper and fragments of fresh-water mussel-shells. At the shoulder was a handsomely polished "celt" of volcanic stone, about 6 inches in length.

In the same part of the mound, near the surface, was a lone skull.

It is probable that this mound had been much higher at one time and that certain burials have been ploughed away during its cultivation.

One-half mile north of Steiner's Landing are two small mounds in which we were not permitted to dig on account of a recent change in ownership.

Mounds near Rembert's Landing, Marengo County.

In woods, the property of Mr. D. J. Meador, of Myrtlewood, Alabama, about one mile in a westerly direction from the landing, is a group of symmetrical little mounds, all near to one another, some actually in contact. These mounds, 31 in number, according to our count, which perhaps omitted some, were smaller than certain ones in the group near Breckenridge Landing, none exceeding 4 feet in height, though some seemed to do so, owing to depressions near them whence material for their construction had been taken.

Seven of these mounds were dug by us in the same way that those near Breckenridge Landing were treated, and proved to be of sand with an admixture of clay, some having considerably more clay than others.

Human remains in these mounds were so hopelessly decayed that presumably some burials had totally disappeared.

Mound Number 1.—Height, 3 feet 4 inches; basal diameter, 26 feet, the central 12 feet of which were dug out by us. At seven inches below the surface of this circular mound was what was left of a skull. Twenty inches down was a bunched burial made up of a skull and a number of long-bones, and a mass of material too much decayed to identify. The skull in this case was to the west of the bunch. Near it were several pebbles and small masses of rock, also a flat, roughly circular mass of hematite, 6.5 inches by 7.5 inches, pitted on each side, the depressions being highly polished. On the base of this mound were marks of where a large fire had been.

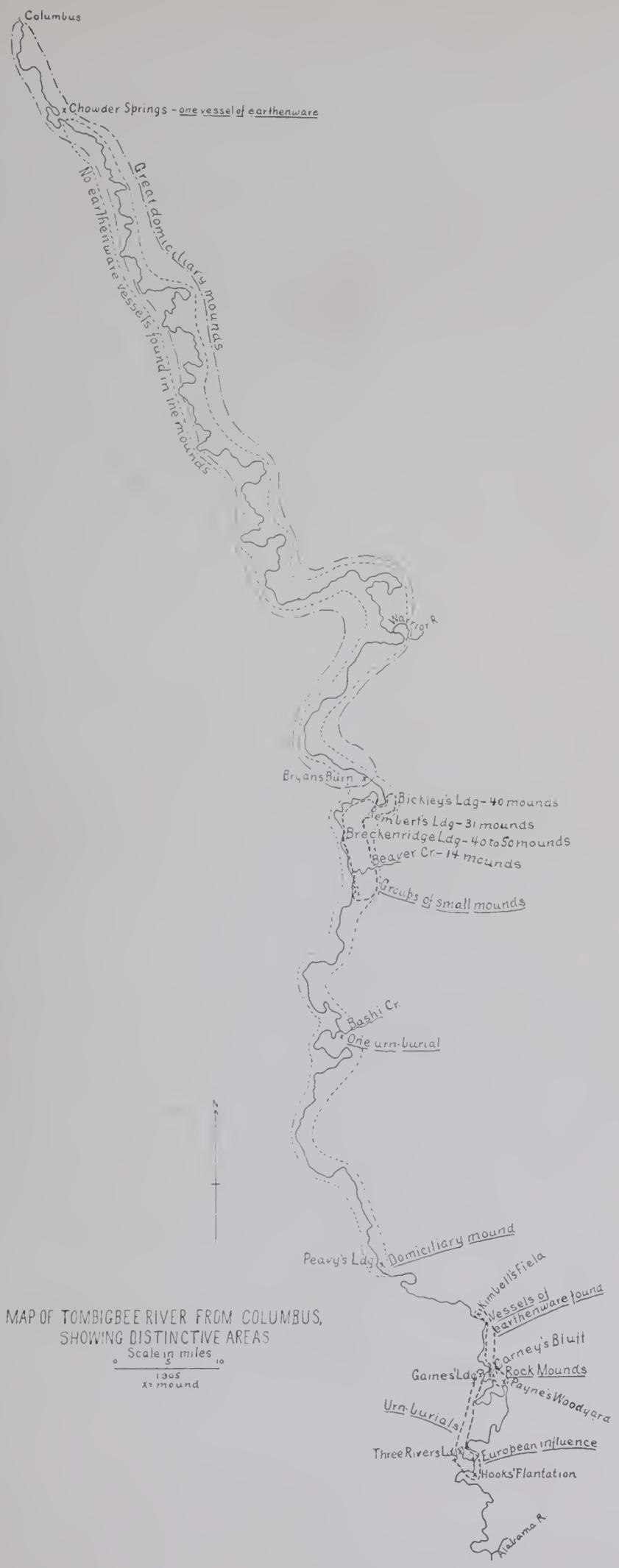
Mound Number 2.—A trifle over 2 feet in height, and 20 feet across the base. The central 9 feet were dug from it by us. East of the center, 16 inches down, were the remains of a skull, some distance to the west from which, at the same level, were fragments of two long-bones.

Mound Number 3.—Height, 2 feet 3 inches; diameter, 19 feet; a core 9 feet in diameter dug from its center by us. Somewhat east of the central part of the mound, 6 inches down, were fragments of a skull. At a depth of 2 feet, west of the center, was a skull, then a space without bones, then a femur, and a fragment of bone, perhaps representing another femur, both at right angles to an imaginary line drawn through the skull. Two sherds of inferior, cord-marked ware and an arrowhead of quartzite came from this mound.

Mound Number 4.—This mound was 2 feet 8 inches high, 23 feet in diameter, the central 10 feet of which were dug out by us. Neither bone nor artifact was encountered.

Mound Number 5.—Height, 2 feet; diameter, 17 feet. On the base of the mound which was entirely dug away by us, was a fireplace on which was a small fragment of skull, black, but whether through the agency of fire or stained by charcoal was not apparent.

Mound Number 6.—This mound was 1 foot 3 inches high, and 17 feet in diameter. A central portion 12 feet across was investigated. Somewhat to the east of the center were remains of a skull; some distance to the west were fragments of bone. A few pebbles and small masses of rock, somewhat chipped, came from this mound.



MAP OF TOMBIGBEE RIVER FROM COLUMBUS, SHOWING DISTINCTIVE AREAS

Scale in miles
0 5 10
1905
x = mound

Mound Number 7.—Height, 15 inches; diameter, 20 feet. The central part of this mound, 12 feet in diameter, was excavated. Fourteen inches down were fragments of long-bones, parallel. At the same level, somewhat to the west, were parts of a skull.

The next landing above Rembert's is Bickley's, where our former work on the Tombigbee ended. The river, therefore, has been covered by us from Columbus, Miss., to its junction with the Alabama river.

The Tombigbee river[1] from its junction with the Alabama to Columbus, Mississippi, practically the head of navigation, 334 miles above, by water, while it yielded to our search but few artifacts and but little new in the way of data, is of interest on account of the comparatively sharp limits confining the practice of certain aboriginal customs along its course. Realizing that later investigation by others may modify conclusions based on our work, we shall, with the help of the accompanying map, outline these areas as noted by us.

At Hooks' Plantation, 17 miles above the junction of the Tombigbee and Alabama rivers, and at Three Rivers Landing, 20 miles above the junction, the character of some artifacts found shows European influence.

At Hooks' Plantation, at Three Rivers Landing, and at Gaines' Landing, 27 miles above Three Rivers Landing, urn-burials were present in the mounds. In the mound near Bashi creek, 66 miles farther up the river, however, were the remains of a single urn-burial.

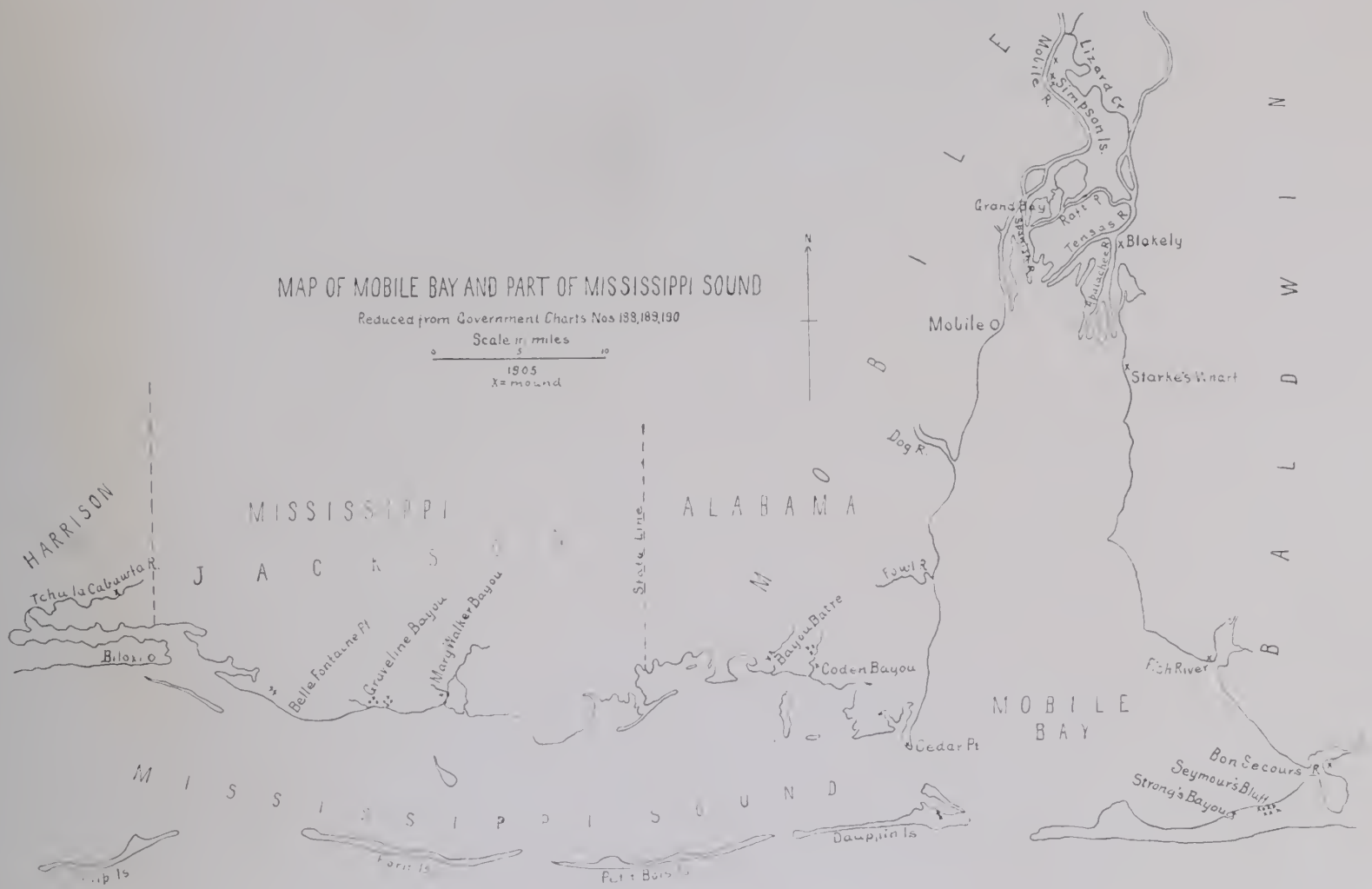
At Payne's Woodyard, 35 miles above the junction, at Carney's Bluff, 10 miles farther up, were the "rock mounds."

At Payne's Woodyard, at Carney's Bluff, in the mound in Kimbell's Field, 10 miles above Carney's Bluff, entire vessels of earthenware had been placed in the mounds as offerings to the dead. If we exclude urn-burials, a different custom entirely, no other votive offerings of vessels of earthenware were met with by us on the whole river, with the exception of one small vessel of inferior ware found just below Columbus, Miss.

At Beaver creek, 139 miles above the junction, and again north of Beaver creek; at Breckenridge Landing, 5 miles above Beaver creek; at Rembert's Landing, 11 miles farther up the river; and at Bickley's Landing, one mile above Rembert's, were found numerous small mounds grouped together. These localities are all on the eastern side of the river and are within an area having a diameter of six miles.

At Bryan's Burn, 159 miles above the junction, the region of the great domiciliary mounds begins and continues northward as far as our investigations went. Opposite Peavey's Landing, however, 88 miles below Bryan's Burn, is a domiciliary mound of a size entitling it to rank among the great ones of the upper river.

[1] In summing up we shall include, also, that part of the river investigated by us in 1901. All distances given are measured miles, following the course of the river.



CERTAIN ABORIGINAL REMAINS ON MOBILE BAY AND ON MISSISSIPPI SOUND.

By Clarence B. Moore.

Mobile bay, about forty miles in length and twenty-three miles across at its broadest part, is almost surrounded by Baldwin and Mobile counties, in the State of Alabama. An opening at the south connects the bay with the Gulf of Mexico.

As shown on the accompanying map, Mississippi sound extends to the westward of Mobile bay, bordering part of Alabama and Mississippi. Its length is about eighty miles; its width, from five to twelve miles.

Mr. J. S. Raybon, captain of our steamer, who is very familiar with mounds and persistent in locating them, with a companion searched the shores of Mobile bay, with the exception of the western side, and carefully traversed the territory bordering Mississippi sound, in advance of our visit. After our arrival, the western coast of Mobile bay was examined by us in the endeavor to locate mounds.

In this report is given the result of our work in 1905 on Mobile bay, which is meager, and the outcome of our search along Mississippi sound as far as Biloxi, Miss. which is purely negative. At Biloxi, somewhat more than half the length of the sound having been covered, our work was abandoned, as our agent reported no mounds of importance beyond, and because our work on the sound had been so discouraging.

The warm thanks of the Academy are tendered to owners of mounds and of sites around Mobile bay and along Mississippi sound for courteous permission to conduct investigations on their properties.

Mounds and Sites Investigated on Mobile Bay.

Mounds on Simpson Island, Baldwin county, Alabama (3).
Shell deposit at Blakeley, Baldwin County.
Mound near Starke's wharf, Baldwin County.
Shell mound near Fish river, Baldwin County.
Shell ridge near Bon Secours river, Baldwin County.
Mounds on Seymour's bluff, Baldwin County (7).
Shell bank, Strong's bayou, Baldwin County.

Mound on Bottle creek, Baldwin County.

Mounds and Sites Investigated on Mississippi Sound.

Shell deposit on Dauphin island, Mobile county, Alabama.
Mounds near Coden bayou, Mobile County (4).
Mounds near Bayou Batre, Mobile County (2).
Mound near Mary Walker bayou, Jackson county, Mississippi.
Mounds near Graveline bayou, Jackson County (7).
Mounds near Belle Fontaine point, Jackson County (2).
Mound on Tchu la Cabawfa river, Harrison County, Mississippi.

MOUNDS AND SITES INVESTIGATED ON MOBILE BAY.

Mounds on Simpson Island, Baldwin County, Alabama.

Simpson island, the southern extremity of which is about three miles in a northeasterly direction from Mobile, is about 18 miles in length. It is one of a number of islands to the north of Mobile bay. Its western boundaries are the Mobile and Spanish rivers; its eastern, Lizard creek and Tensas river; the junction of Mobile river and Lizard creek forms its northern boundary; Raft river bounds it on the south. The northern portion of the island is the property of Mr. Thomas M. McMillan, of Mobile, Alabama.

About two miles from the northern end of the island, on the western side, about 75 yards from the river's bank, in dense cane-brake in the swamp, is a symmetrical mound a trifle more than 7 feet in height. Its circular base is about 56 feet across.

A number of excavations indicated the mound to be composed of a mixture of swamp-mud and small clam-shells (*Rangia cuneata*). No indication of its use for burial purposes was met with, and presumably its character was domiciliary.

About one mile below the mound just described, on the same side of the island, is a clearing with frame houses upon it. About 250 yards in a southerly direction from the houses, on the cultivated ground, not far from the water on the west and contiguous to the swamp on the east, was a mound, circular in outline, 3 feet in height and 87 feet in basal diameter.

As this mound, composed of a large percentage of shell (*Rangia cuneata*) mixed with tenacious muck, is regarded as a stable refuge in high stages of the river, its demolition was considered inadvisable. Permission, however, was granted to dig most of the mound, leaving the margin undisturbed and solid against wash of water. Therefore, a central portion 50 feet in diameter was dug out by us and subsequently refilled.

In two places, at least, masses of lime reduced from the shell by fire, were encountered. Throughout the mound, very sparingly, were bones of lower animals, including teeth of alligators. The usual dwelling-site material was present, including hones of ferruginous sandstone, pebbles, pebble-hammers, smoothing-stones, a pebble roughly chipped to a cutting edge at each end, and a tine of stag-horn sharpened at the end, like a narrow chisel.

Fragments of earthenware were not markedly numerous. The ware graded from inferior to excellent, some shell-tempered, some not. Decoration, when present, was incised, or the small cheek-stamp, or showed curved imprints as if made by a finger-nail or a section of a reed. The head of a frog and the head of a duck, ornaments from earthenware vessels, were met with, as were several loop-shaped handles.

Human remains, all badly decayed, were abundant. No cranium was recovered in condition to preserve, though in several instances frontal parts showed no mark of compression. No burial lay deeper than 18 inches, while many were nearer the surface. In many cases were found bones thrown carelessly together as if from recent disturbance; but owing to the dark material from which the mound was made, being the same as that on the surface, it was impossible to say if recent digging had been done or not, the usual evidence, *i. e.*, material of a different color let into the mound, being absent in this case.

Many fragments of human remains, having the appearance of aboriginal disturbances, lay scattered through the mound, and, in addition, near a number of skeletons, were disconnected bones having no relation to them.

Excluding these disturbances of bones, aboriginal or otherwise, there were present, in the portion of the mound dug by us, twenty-nine burials, as follows:

Bunched burials—15.

Skeletons at full length on the back—4.

Skeletons at full length, face down—3.

Burials to be described particularly—7.

One skeleton lay face downward as far as the knees, the legs being drawn back against the thighs.

In a little pile were most, if not all, of the bones of a child, including the skull.

Two burials were lone skulls in fragments.

One skeleton lay partly flexed on the back, the knees upturned and directed toward the left.

The skeleton of an infant lay alone.

Near the northeastern margin of the mound lay the skeleton of an adult, on its back, with head to the east, the skull turned slightly to one side. Completely covering the skull, the rim resting on some of the cervical vertebræ, was an inverted, imperforate bowl, the base but 8 inches from the surface. This bowl (Fig. 1), of solid ware, having a maximum diameter of 11.75 and a height of 3.75 inches, bears an interesting, incised decoration consisting of a variety of symbols, a portion of which, representative of all, is shown diagrammatically in Fig. 2.

FIG. 1.—Bowl found turned over skull. Mound on Simpson Island. [Diameter 11.75 inches.]

This burial, which may be called a kind of urn-burial, occurring in Alabama, is of considerable interest inasmuch as this form of urn-burial, namely an entire skeleton, the skull belonging to which is covered by an inverted bowl, has not been described, to our knowledge, as met with farther eastward than Arizona and New Mexico.[1] Along the northwestern Florida coast we found urn-burials where isolated skulls or skulls with a few scattered bones, were covered by large bowls inverted over them, but this form of urn-burial is different from that found on Simpson island. The burial here detailed is the only one of the kind we have met with, with the exception of one, somewhat resembling it, found by us in a mound near Three Rivers Landing, Tombigbee river, Alabama.[2]

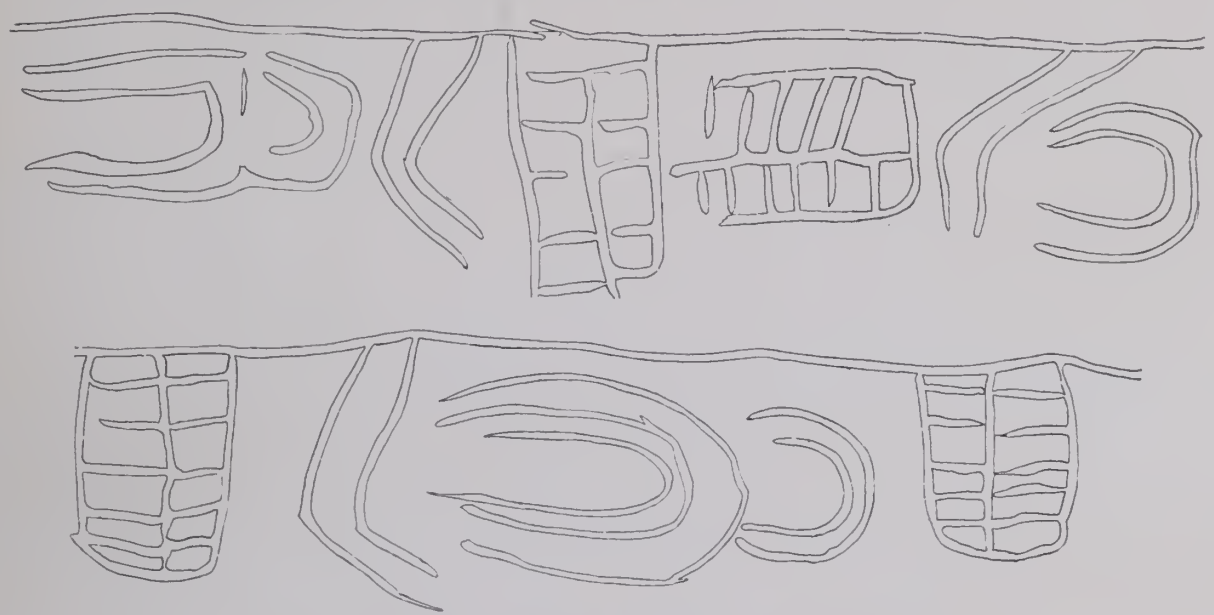


FIG. 2.—Decoration on vessel from Simpson Island. (About half size.)

Certain bunched burials in this mound were noteworthy as showing careful arrangement. One was made up of the bones of an adult and those of a child, including the skulls. One consisted of a considerable bunch of long-bones, all parallel, but without skulls. Another was composed of two series of long-bones carefully arranged, the upper at right angles to the lower. On the bunch last mentioned were two skulls.

No bunched burial had more than two skulls, with one exception. A central bunch or layer, 8 feet long, 14 to 22 inches in breadth, was made up mostly of long-bones, not thrown in promiscuously but carefully piled, among which were femurs representing ten individuals. With this bunch were five crania.

Below the knee of the skeleton of an adult was a discoidal stone, 3.25 inches

[1] Clarence B. Moore, "Aboriginal Urn-burial in the United States," American Anthropologist, Oct.–Dec., 1904.

[2] "Certain Aboriginal Remains of the Lower Tombigbee River," Journ. Acad. Nat. Sci. of Phila., Vol. XIII, p. 251.

in diameter, rather roughly made, the only artifact, with the exception of the bowl, that was found with human remains in this mound.

About one hundred paces through the swamp in a SSE. direction from the mound just described, is a mound of irregular outline, with basal diameters of 121 feet and 150 feet. Its height is 3.5 feet. Eighteen excavations made by us, each 3 feet square at the opening, showed the mound to be mainly of the same material as its neighbor, though one excavation yielded shell alone. At one point a skeleton, lying at full length on its back, was found.

In the Smithsonian Report for 1878[1] an account is given of the finding of an urn-burial in a shell deposit on Simpson island, but the exact location of the deposit is not specified. Two shell deposits on the southern part of this island were visited by us, one on Raft river, the other on Grand bay. These deposits seemed general over the surface, no defined heaps being noted. The discovery of burials in such localities, where the area is too great for systematic investigation, must depend on chance alone.

Shell Deposit at Blakeley, Baldwin County.

Blakeley, a small settlement, is on the mainland opposite the junction of the Tensas and Apalachee rivers.

About one-quarter mile in a southerly direction from Blakeley, bordering the water and extending back, is a shell deposit a number of acres in extent. The exact area of this deposit would be impossible to determine, much being covered by swamp-mud, fallen trees in the swamp holding quantities of shell among their upturned roots. The deposit, made up of small clam-shells (*Rangia cuneata*) with considerable admixture of loam, varies much in height, 6 to 7 feet probably being the maximum; but this is quite exceptional and is confined to several small areas. Considerable shell material has been hauled away, leaving human bones, here and there, upon the surface.

Eleven excavations, each 3 feet square, and from 2 to 3 feet deep (which was about the height of that part of the deposit), were made by us by way of trial. In some, human bones were encountered; in others, not.

In one hole, not far from the surface, were parts of four skulls, and other scattered bones. At a depth of 16 inches was a circular deposit of fragments of cremated, human bones, 10 inches in diameter, 4 inches deep. No sign of fire marked the immediate vicinity of this deposit. Just above the bones lay a tool with a blunt point, made from an antler of a deer, showing no mark of fire. Thirty-two inches from the cremated remains, in the same hole, at about the same level, was a mass of fragments of calcined shell, including, however, a number of shells showing no trace of fire. No charcoal was present with this deposit. About 1 foot below a skeleton which lay near the cremated remains, was another skeleton, flexed on the left side. One hand resting on the neck was in contact with an ornament of

[1] Page 290.

sheet-copper that had imparted a green color to some of the bones of the hand and to at least one of the cervical vertebræ. This ornament, 3 inches long by 1.5 inches wide, is corrugated on one side and belongs to a type common to the mound at Crystal river, northwest Florida; the larger mound at Murphy island, St. Johns river, Florida, and other localities. With the copper lay two mussel-shells. One (*Lampsilis anodontoides*) shows a perforation at one end; the other was broken to fragments in digging. Near the skull of the skeleton on which was the copper ornament lay an isolated calvarium.

In another excavation were a few scattered human bones.

In a third hole was a considerable deposit of fragments of calcined shell, without charcoal but containing also unburnt shells, similar to the deposit described before. On this material, 32 inches from the surface, lay a skeleton flexed to the left. Near this skeleton, but about 8 inches higher, lay another skeleton, flexed on the right side. In another part of the same hole were a few scattered bones.

These were the only trial-holes that yielded human remains.

Comparatively few sherds were met with during the digging. One fragment, the base of a pot, has three feet.

It was determined by us to make additional excavations near that part of the shell deposit where the three trial-holes, which were all near to each other, had been productive. Seven additional holes, therefore, were sunk, five being 6 feet square each, one 5 feet square, and another 5 feet by 10 feet. Subsequently, these excavations were greatly enlarged until some of them joined. All were carried to a depth of more than 4 feet, seemingly the height of the deposit at that place, where their abandonment was necessary as water-level had been reached. Shell, however, continued down an undetermined distance.

Burials were found almost exclusively in two adjacent excavations which, subsequently, were merged. The bones, unusually soft for those that have been reinforced with lime-salts coming from shell, were in no case, but one, more than 2 feet 8 inches from the surface. The exception, scattered bones, lay at a depth of 3 feet 8 inches.

Disconnected bones, and aboriginal disturbances where, apparently, burials had been cut through in making other graves, were met with in a number of instances. In addition, burials were encountered as follows:

Skeletons closely flexed on the right side—2.

Skeletons flexed on the right side—4.

Skeletons closely flexed on the left side—2.

Skeleton flexed on the left side (a child)—1.

Skeletons at full length on the back, including two infants side by side—4.

Skeleton at full length, face down—1.

Skeleton at full length on back, to knees which were bent at right angles (child)—1.

Skeleton closely flexed, the trunk chest downward, the legs to the left—1.

Young infant, at full length, exact position not determinable—1.

Certain skeletons given above deserve particular notice:

The skeleton of an adult, at full length on the back, had three slabs of ferruginous sandstone around the skull. Back of the head, on edge, was a slab 7 inches by 4 inches, approximately, and 1 inch thick. In front of the face and a little under it was a slab about 6 inches square. Another, about half the size of the foregoing, lay on its side in front of the mouth. Two additional slabs lay on the thorax, one below the other, and another lay at the left side of the skeleton.

A skeleton at full length, face down, had below the skull a small, undecorated pot of inferior ware, with a basal perforation, and around the cranium three slabs of ferruginous sandstone. On the thorax lay an additional slab, and another lay on the pelvis. On the thighs were two fragments of a decorated vessel of earthenware, shown in Fig. 3.

FIG. 3.—Fragments of earthenware. Shell deposit at Blakeley. (About full size.)

In two or three other instances, burials with slabs, similar to those we have described, were met with. In one case a stone lay over a skull; in another burial single slabs lay under the skull, on the thorax, and somewhat under the left side of the pelvis.

An arrowhead or knife, of chert lay on the chest of the skeleton of an infant.

Apart from human remains were a rough cutting implement of quartzite; an arrowhead or knife and a fragment of an arrowhead, of the same material.

But few bits of earthenware were encountered during these excavations. One, of excellent ware, shows ornamentation with red paint. One base of a vessel has three feet; two have four feet each. So far as noted by us, no ware in this deposit was shell-tempered.

Though care was taken to observe, it was impossible, so far as our experience went, to say whether the burials in this shell deposit were made from the present surface or during the growth of the deposit. The uniformity in color of the entire deposit made the detection of intrusive burials impossible.

Mound near Starke's Wharf, Baldwin County.

Starke's wharf is on the northeastern part of Mobile bay.

About one-half mile in a N. by W. direction, a little back from the bay, is an abandoned settlement. Within the limits of this settlement was a mound of sand, 5 feet 6 inches in height and about 64 feet across its circular base, on property belonging to Mr. George H. Hoyle, of Battle's, Alabama.

The mound, which was somewhat spread, had undergone previous digging to the extent of a narrow but deep hole in the center, part of which had been filled again. The mound was entirely leveled by us.

In surface-material were two glass beads and a bit of sheet-lead, found separately. At the bottom of the previous excavation, beneath several feet of sand, was the iron blade of a spade. A beginner, misled by this discovery, might readily assign an unduly late origin to the mound.

In the outer part of the mound no burials were met with. At some distance from the margin lay the decaying remnants of a skull with a bone of ferruginous sandstone. There is an outcropping of this rock on the shore of the bay, not far from the mound.

When the mound, which was surrounded by diggers, had been reduced to diameters of 28 and 37 feet, various burials were met with and continued to be found until the center of the mound was reached,—one at 18 inches, some at 2.5 feet, but usually from 3.5 to 5 feet, from the surface. Two burials lay 6 feet down. All bones were in the last stage of decay, being mere fragments which crumbled under pressure. Burials were as follows:

Lone skulls—10.
Skull with two fragments of femur—1.
Two skulls with a fragment of femur—1.
Skull with a few fragments of other bone—1.
Bunched burials, three with one skull, one with two skulls—4.
Two femurs together—1.
Two tibiæ together—1.
Crumbling fragments—6.

Comparatively few artifacts lay with the burials. With a few fragments of bone was mica, to which, seemingly, had been given the outline of a spearhead.

With a bunched burial were a bit of chert and a triangular fragment of pottery.

A lone skull had with it mica, ferruginous sandstone, and yellow, paint-like material, probably limonite.

With two femurs was a fragment of pottery of considerable size, and in several cases in this mound, in the same way, a part of a vessel apparently did duty for the whole.

Charcoal was associated with a number of burials. Two tibiæ lay beneath a layer 20 inches wide, 27 inches long, and 1 to 2 inches in thickness.

Singly, and apart from human bones, though it is quite possible that burials with which some of them had been had disappeared through decay, were one ham-

mer-stone, a number of pebble-hammers, pebbles, a small bird-arrowhead of quartz, and a slab of ferruginous sand-stone.

Together, with no burial at hand, were five pebbles, some showing use as hammers, and many small fragments of an undecorated vessel.

Another deposit, lying alone, consisted of one pebble; a rude arrowhead of quartzite; an astragalus of a deer; and a cutting implement of soft, clayey stone, 4.7 inches long, with one end prepared for hafting (Fig. 4).

With the exception of the fragments to which reference has been made, no earthenware was present with burials in this mound.

About 15 inches below the surface was a smoking-pipe of inferior earthenware, undecorated, with the exception of a few parallel lines on the margin of a kind of shoulder extending beyond the base of the bowl. On two sides of the rim of the bowl, and on one side of the portion intended to receive the stem, small parts have been chipped away, apparently an intentional mutilation (Fig. 5).

FIG. 4.—Implement of stone. Mound near Starke's Wharf. (Length 4.7 inches.)

FIG. 5.—Pipe of earthenware. Mound near Starke's wharf. (Height 2.25 inches.)

In fragments, near the surface, was part of another earthenware pipe of an ordinary type and of inferior ware.

Five feet from the surface, in many fragments, was an undecorated vessel which, when whole, had a globular body with a short neck.

Throughout the mound lay a limited number of sherds, some of rather inferior ware, others of excellent, yellow paste, all without shell-tempering. Decoration on them varied. There were present incised designs and decoration with red paint, and the two in combination; also incised and punctate designs. The small check-stamp is represented, as are three varieties of a pattern of complicated stamp—seemingly rather far westward for this kind of decoration. One of these complicated stamp designs, and two other sherds from this mound, are shown in Fig. 6.

One fragment of a vessel, part of a base, shows a mortuary perforation.

The mound near Starke's wharf was the only burial mound found by us on Mobile bay, if we exclude that on Simpson island, which, properly speaking, is somewhat north of the bay.

FIG. 6.—Sherds. Mound near Starke's wharf.

Shell Mound near Fish River, Baldwin County.

On the bay, about one-half mile in a northerly direction from the northern point of the entrance into Fish river, is the property of Mr. William V. Street, of Point Clear, Alabama. Adjoining the house is a shell field that has been under cultivation. In this field is a mound composed of oyster-shells with a slight admixture of small clam-shells (*Rangia cuneata*) and black loam.

This mound, roughly circular in outline, about 3 feet in height and 60 feet across the base, had thirteen holes dug into it by us, each from 3 to 5 feet in diameter at the surface, and extending to the base.

No human remains were met with.

Broken pottery was found in considerable quantity, all shell-tempered, though it was noted that the finer quality of ware contained shell pounded into more minute particles than that in the coarser variety. The decoration is incised, in the main, consisting chiefly of series of roughly parallel, encircling lines. Punctate decoration is present on some fragments of coarser ware, and a combination of line and cross-hatch on one specimen of fine paste. The small check-stamp is represented by a single fragment. Loop-handles are numerous.

One small disc, carefully cut from a fragment of earthenware, came from the mound, and two larger ones from the surface of the surrounding field.

Similar discs, made from fragments of earthenware vessels, have been met with in numbers in various regions from Canada[1] to Costa Rica.[2]

We have found imperforate earthenware discs of this kind in South Carolina, in Georgia, and in Alabama, but not in peninsular Florida, where the discoidal stone also is not found. These discs doubtless were used in some game. Mr. Laidlaw says the Crees and Salteaux employ them in a game similar to our "billy button." Hartman saw earthenware discs of this kind in use among the children of the Pipiles of Salvador, who fastened a bunch of feathers to a disc and throwing it into the air, called it "pigeon" or "little rooster."

In northwestern Florida[3] we found two earthenware discs centrally perforated, one on each side of a skull, against the bone, with a disc of sheet-copper on the outside of each of the pottery discs. Cord remaining in the copper discs showed that each had been connected with one of the earthenware discs and that the cord, passing through the lobe of the ear and fastened to the earthenware disc, which was worn behind the lobe of the ear, had kept the copper disc in place in front of the lobe. Once again, in middle Florida, we found two similar discs of earthenware with fragments of sheet-copper. Such earthenware discs, utilized to economize in the

[1] G. E. Laidlaw, "The Aboriginal Remains of Balsam Lake, Ontario," American Antiquarian, March, 1897.

[2] C. V. Hartman, "Archæological Researches in Costa Rica," Stockholm, 1901, p. 33, foot-note. See also Gerard Fowke, "Stone Art," 13th An. Rep. Bur. Am. Ethn., p. 109.

W. H. Holmes, "Aboriginal Pottery of Eastern United States," 20th An. Rep. Bur. Am. Ethn., p. 43.

Stewart Culin, "Chess and Playing Cards," Rept. U. S. National Museum for 1896, p. 709.

[3] "Certain Aboriginal Remains of the NW. Florida Coast," Journ. Acad. Nat. Sci. of Phila., Vol. XII, p. 336.

use of copper, are, of necessity, centrally perforated and form a negligible percentage of the earthenware discs that are found.

FIG. 7.—Part of earthenware vessel. Shell mound near Fish river. (About full size.)

But to return to the mound. An interesting effigy of a human head, of earthenware, originally part of a vessel, was met with in this mound (Fig. 7). The nose, broken at the end, has been carefully smoothed at the place of fracture.

A flat pebble, neatly rounded, lay among the shells. A mass of ferruginous sandstone and a small disc of the same material came from the mound; a larger disc of the same material was found on the surface of the field, as was a quartz pebble 3.5 inches in length, to which a cutting edge had been given at one end.

SHELL RIDGE NEAR BON SECOURS RIVER.

BALDWIN COUNTY.

On the south side of Bon Secours river, about 1.5 miles up, at the northeast point of Oyster bay, behind the dwelling of Mr. W. R. Steiner, on whose property it is, is a ridge or mound of irregular shape and varying height, extending into adjacent fields.

Eleven excavations, from 3 to 5 feet in diameter at the opening, were carried to the base, the greatest depth being 4 feet. The ridge, where dug, was composed of black, sandy loam with a varying percentage of oyster-shells, among which were a few small clam-shells. Below the shells was a layer of black, loamy sand, free from admixture of shell; and beneath this was yellow sand, the original surface.

Fragmentary human remains were found in four places, none at a depth greater than 2 feet.

Near the fragments of a skull was a shell hair-pin with part of the shank missing through an early fracture.

Ten cannon-bones of the deer, parallel one to another, lay in a little pile about 2.5 feet from the surface.

In addition to several pebbles and masses of ferruginous sandstone, two lumps of hematite were found, very bright in color, ready to grind for paint.

The earthenware, of which many fragments were uncovered, varies greatly in quality, some fragments being strong and bearing a considerable polish. The ware is shell-tempered in nearly every instance, though in several specimens the eye fails to detect evidence of shell, and in one fragment sand-tempering is plainly visible. The ware, when decorated, bears the small check-stamp; incised designs, including part of the human hand; punctate markings; and, in one specimen, raised decoration. A selection of sherds from this place is shown in Fig. 8. Two small discs,

FIG. 8.—Sherds. Shell deposit near Bon Secours river.

made from fragments of earthenware vessels, were found. One of these, shown with the sherds, has a perforation near the center from which five radii extend on one side of the disc and six on the other.

Mounds on Seymour's Bluff, Baldwin County.

Along Seymour's bluff, which is near the southeastern end of Mobile bay, near the water, are seven mounds on properties of Mr. Owen Roberts, of Mobile, and Messrs. William D. Todd and J. W. Nelson, of Gasque, a nearby settlement. These mounds, all of sand more or less blackened with organic matter, were probably erected for domiciliary purposes, as an exhaustive examination of one, and a careful examination of five others, yielded only a few animal bones, one rude arrowhead, and some fragments of earthenware.

One mound, used as a cemetery in recent times, was only casually investigated by us. It resembles the others outwardly and probably belongs to their class.

The westernmost mound, to which the principal examination was given, had a height of 5.5 feet with a basal diameter of 120 feet. Of the remaining mounds, some were slightly larger than this one, some smaller.

The earthenware from these mounds, including parts of shallow platters, when decorated, bears the small check-stamp almost exclusively, though in one instance the head of a duck, in relief, is present. None of this ware, so far as noted, has an admixture of shell.

As these mounds indicated the presence of a considerable population in early times, special attention was devoted by us to a search for a cemetery. Much of the level ground nearby was carefully sounded with iron rods, and adjacent woods were scoured in the endeavor to locate undulations in the ground, which sometimes mark the presence of cemeteries. Our efforts were not rewarded.

Shell Bank, Strong's Bayou, Baldwin County.

Going westward from Seymour's bluff along the shore of the bay a distance of perhaps 1.5 miles, shell fields are encountered with deposits of shell, increasing in bulk until the culmination is reached on the shore of Strong's bayou, in a mass of oyster-shells known as Shell Bank, the property of Mr. J. C. Nelson, of Gasque. All along the bay-side the wash of water has laid bare a section of shell deposit, which was carefully examined by us. No human bones were seen, but a number of fragments of pottery lay in the shell, while other sherds, some water-worn, were upon the shore. If the small check-stamp is represented in the decoration of the earthenware in this shell deposit, some of which is excellent and bears incised and punctate markings, as shown in Fig. 9, it was not noted by us. Only shell-tempered ware was seen. Here, in two respects, we note a contrast between the earthenware of the shell deposit and that of the neighboring domiciliary mounds of sand.

Two discoidal stones which, no doubt, had fallen from the shell bank, lay below it on the beach.

Cedar Point, near the southwestern extremity of Mobile bay, has a considerable shell deposit which was not dug into by us.

We were unable to locate any aboriginal remains on the western side of Mobile bay, though careful inquiries were made on Fowl river and on Dog river.

Fig. 9.—Sherds. Shell deposit, Strong's bayou.

Mound on Bottle Creek, Baldwin County, Ala.

This locally-famous mound, considerably north of Mobile bay, properly cannot be included among aboriginal remains of that bay; but as it should not be passed without notice, a description of it will be given here.

The mound, on property of Mr. B. F. McMillan, of Stockton, Alabama, is in a cultivated field about one-quarter mile from the western bank of Bottle creek, at a point about four miles up stream. Bottle creek connects Middle river with Tensas river.

The mound, 46.5 feet in height, oblong with rounded corners, has a basal length E. by N. and W. by S. of 306 feet. Its width is 251 feet. The summit plateau is 100 feet in length and 42 feet wide. Judging from the shape of the mound, it belongs to the domiciliary class, and this belief was strengthened by the examination of a considerable excavation made by former diggers on the western side of the mound. So far as this digging shows, the mound is of clay. No excavation was attempted by us.

Surrounding the mound had been a dwelling-site, and the ploughed surface showed hammer-stones, fragments of chert, and bits of pottery, the last including a bird-head ornament from a vessel, 5 inches in height.

A sprinkling of small clam-shells (*Rangia cuneata*) was observable over the ground.

Near the mound and in the swamp were circular elevations and ridges, all of clay with the exception of one which was of sand and clay. Careful examination showed these to have been dwelling-sites containing the usual debris and, in one instance, a toy-bowl of earthenware, about an inch in diameter. Within the sites and on the surrounding surface was fairly good earthenware, some of the fragments being rather rudely decorated. Nearly all were shell-tempered, though in one instance, at least, the tempering was of coarse sand. One of the well-known earthenware discs, cut from a fragment of a vessel came from a dwelling-site. This disc bears what may have been an interesting, incised decoration made after the excision of the disc, but unfortunately, it is too much weathered to determine the character of the design.

One circular elevation, about 5 feet high and 100 feet in diameter, had near the surface a flexed burial, presumably intrusive. In addition, were two recent graves with skeletons at full length, near which were iron nails and fragments of wooden coffins.

MOUNDS AND SITES INVESTIGATED ON MISSISSIPPI SOUND.

Shell Deposit on Dauphin Island, Mobile County, Alabama.

Dauphin island, part of which is bordered by Mobile bay, and part by Mississippi sound, of which it is the southeastern boundary, is mainly a narrow strip of bare sand. At its eastern end is a considerable aboriginal deposit of shells, mainly of the oyster.

Some digging by us yielded fragments of earthenware, some shell-tempered, others not. The ware, when decorated, resembles that of Mobile bay. Loop handles and effigies of heads of birds are present. A selection of sherds from this island is shown in Fig. 10.

No human remains were found, though in the great shell-heaps of this place, burials may well have escaped us.

Mounds near Coden Bayou, Mobile County.

Coden bayou, a part of Mississippi sound (where work was begun by us after leaving Mobile bay), and the nearby town of Coden have their name from an abbreviation of *Coq d'Inde*, "turkey," the former name of the bayou, which name it still bears on the Government chart.

Four small mounds, one belonging to Mr. Henry Klass, Jr., of Mobile, three to Mr. E. F. Long, of Coden, were investigated by us near this place without

FIG. 10.—Sherds. Shell deposit, Dauphin island.

material result, no human remains and almost no pottery being found. These mounds, all of which had been considerably dug into previous to our visit, presumably belong to the domiciliary class.

MOUNDS NEAR BAYOU BATRE, MOBILE COUNTY.

About one mile north of the bayou, on the western side, is a property known as the Tate place, belonging to Messrs. William E. Gordon and William Vizard, of Mobile. On this property, which is in sight from the water, are two mounds, one of which, of clay, 6 feet in height and 80 feet across its circular base, had undergone much digging previous to our visit. A careful examination of this mound yielded no human remains and but one small fragment of earthenware.

Nearby is the other, a somewhat smaller mound, also domiciliary.

MOUND NEAR MARY WALKER BAYOU, JACKSON COUNTY, MISSISSIPPI.

Mary Walker bayou enters West Pascagoula river not far from the sound. On the south side of the bayou, near its mouth, is the residence of Mr. David Saucier. About 100 yards in a northwesterly direction from the house is a mound of sand, of circular outline, 3.5 feet in height and 56 feet in diameter of base. A thorough investigation showed this mound to have been domiciliary in character.

Mounds near Graveline Bayou, Jackson County.

Beginning not far from the eastern side of Graveline bayou, back from the bluff that overlooks the sound at this place, are seven mounds of sand, all within three-quarters of a mile from the bayou, on property of Mr. J. I. Ford, of Scranton, Miss. All these mounds are circular in outline with the exception of the largest, which is oblong in horizontal section, about 6 feet in height, with basal diameters of 81 feet north and south and 93 feet east and west, the sides almost corresponding to the cardinal points of the compass. The summit plateau of this oblong mound is 38 feet north and south and 50 feet east and west. Each of the seven mounds was carefully examined by us without discovery of human remains. A few bits of earthenware were met with, only one of which bears decoration.

Mounds near Belle Fontaine Point, Jackson County.

About two miles in a northwesterly direction from Belle Fontaine point are three mounds on property of Mr. S. G. Ramsey, of Fort Bayou, Miss. One of these mounds, used as a modern place of burial, was not investigated by us, but as it resembles the other two, both small, which investigation showed to be domiciliary, it is doubtless of the same kind.

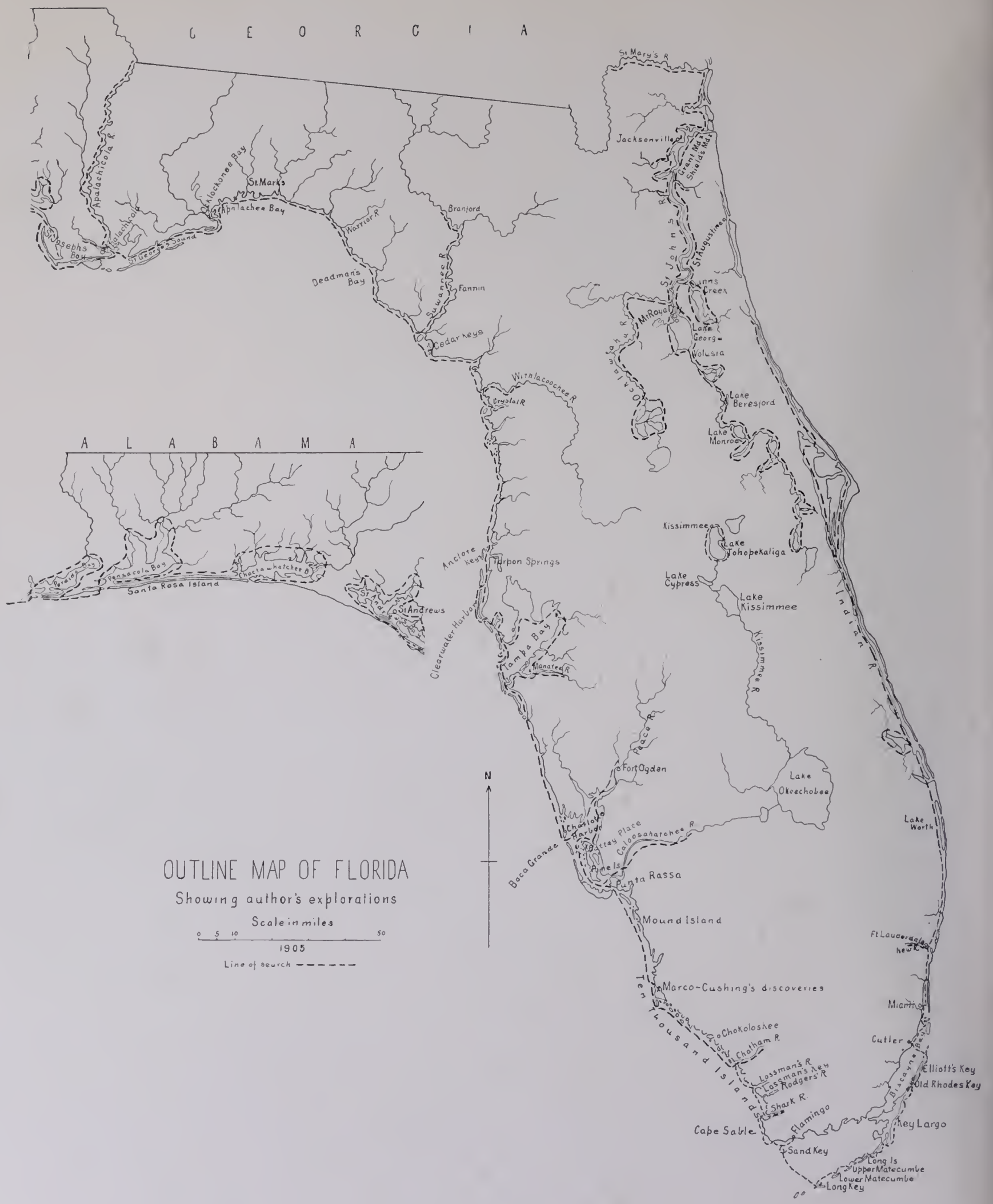
Mound on Tchu La Cabawfa River, Harrison County, Miss.

This mound, said to be on land the ownership of which has reverted to the State, is about six miles in a northerly direction from Biloxi, though much farther if reached by water. It stands about two hundred yards from the eastern bank of the Tchu la Cabawfa river, and about one-half mile above Hawley's bluff, which is on the opposite side of the river.

The mound, in pine woods, is of clay; its outline rounded but irregular. Its basal diameters are 450 feet N. and S. and 290 feet E. and W. Its height is 11 feet, though if measured from points whence material for its building has been taken, the elevation is somewhat greater.

This mound, evidently domiciliary, was dug into by us to a reasonable extent, without material result, for the purpose of ascertaining whether superficial burials had been made.

As our ill-success on Mississippi sound had been so uniform, and as the two agents sent by us in advance to locate mounds had failed to find any west of Biloxi, our investigation of the aboriginal remains of the sound was abandoned at that point, as we have said in our introduction to this report.



OUTLINE MAP OF FLORIDA

Showing author's explorations

Scale in miles

0 5 10 50

1905

Line of search ------

MISCELLANEOUS INVESTIGATION IN FLORIDA.

By Clarence B. Moore.

Our archæological exploration in Florida, during the season of 1904, was unsatisfactory to a certain extent; but as it has ever been our wish to let no investigation of ours pass unrecorded, we give a brief description of the season's work.

THE KISSIMMEE REGION.

The Kissimmee river, leaving the southern extremity of Lake Tohopekaliga, on which is the town of Kissimmee, flows through Cypress Lake and Lake Kissimmee, and continues in a southerly course to Lake Okeechobee. A canal connects the southwestern side of Lake Okeechobee with Caloosahatchee river, which empties into San Carlos bay, an arm of the Gulf of Mexico. These geographic features are shown on maps of Florida, and are presented on the outline map accompanying this report, which shows also the scope of all our archæological work in that State.

A few years ago it was possible, by the aid of certain canals, to make a journey by water, in a steamer of light draught, from Lake Tohopekaliga to the Gulf. Recently, however, the canals had been neglected, and an extensive growth of waterweeds, miles in extent, had formed in Kissimmee river north of Lake Okeechobee; in addition, a heavy dam[1] had been built across Caloosahatchee river, somewhat south of the lake. It was impossible, therefore, at the time of this exploration, for us to take our large, flat-bottomed steamer from the Gulf coast, where she lay, into the Kissimmee region.

Mr. J. S. Raybon, captain of our steamer, an expert in locating mounds, with a companion familiar with the territory, carefully traversed the region between Lakes Tohopekaliga and Okeechobee, inclusive. The report, however, was discouraging. Nowhere was there news of the discovery of earthenware vessels, and such few objects as were reported to have been found by the inhabitants were mainly of European make, and, perhaps, intrusive.

Lake Okeechobee was reported to be surrounded by marsh, and to be without mounds. Nevertheless, we determined to explore the region, if possible, and for this purpose chartered a small steamer which took in tow a flat-boat on which quarters had been built for the use of our colored mound-diggers.

After investigation of the mounds of Lake Tohopekaliga, which was practically without positive result, as the appended account will show, a severe accident occurred to our steam-boiler, which would have rendered the boat useless for a considerable time. No other boat being available, the investigation of the region was therefore abandoned.

[1] Since removed.

MOUNDS OF LAKE TOHOPEKALIGA, OSCEOLA COUNTY.

Mound near Kissimmee.

In a prairie, near the lake-shore, about one mile in a SSW. direction from the town of Kissimmee, on land of Mr. Walter Bass, Sr., of Kissimmee, is a mound, circular in outline, that has been much pawed and trampled by cattle. Its present height and diameter of base are 3 feet and 80 feet, respectively. It is built of sand, as are all the mounds of Lake Tohopekaliga.

Twelve excavations, each about 3 feet square, extending to the base of this mound, resulted in the finding of one arrowhead of chert, a fragment of earthenware bearing the ubiquitous small check-stamp, and several sherds of most inferior ware, each about .5 inch in thickness, with decoration of incised lines. No human remains were found. The mound was doubtless domiciliary.

Lanier Mound.

Situated in pine woods, about 6 miles in a southerly direction from the town of Kissimmee, on property of Mr. J. M. Lanier, living near by, is an artificial ridge of white sand extending almost due north and south. This ridge is 250 feet long and 90 feet in maximum basal breadth; its greatest height is 12 feet 3 inches. Previous to our visit, considerable digging had been done in this mound by persons in some cases known to the owner. No discoveries were reported by these persons.

Although the Lanier mound had every appearance of having been constructed for domiciliary purposes, and the lack of success of previous diggers tended to bear out this idea, three excavations were made by us, each 10 feet square and extending to the base of the mound. One of these was in the southern part, where the mound reached its greatest height; another, of almost equal depth, somewhat more to the north, and the third toward the northern extremity, where the height of the mound was about 8 feet.

In one excavation no relics or remains were encountered. In one was a small deposit of charcoal, and three bits of inferior, undecorated earthenware, found separately.

In the second excavation, at a depth of about 20 inches, was a "celt," with fragments of a human pelvis and parts of a femur and a humerus. About 3 feet distant, at the same level, was a human skull without the lower jaw.

Two and one-half feet down, in the same excavation, was a "celt," almost oblong in outline, with a bit of shell and two fragments of bone, too small for identification.

In our opinion this also was a domiciliary mound and the "celts" and human remains were intrusive.

Mounds near Brown's Landing.

Brown's landing is about one mile south of Edgewater, on the southwestern shore of Lake Tohopekaliga. A mound is situated in pine woods about 2 miles in a southwesterly direction from the landing, in sight from the public road, on prop-

erty of Messrs. H. M. Pfann & Co., of Campbell, Fla. It is circular in outline, 5 feet 4 inches in height and 65 feet across the base. It has been dug into to so great an extent that after slight excavation it was abandoned by us. Various fragments of human bones were met with, and a number of sherds of very inferior ware, all undecorated save one upon which was a certain amount of red pigment. In addition, a single bead of blue glass, about the size of a buckshot, lay alone in the sand.

About three-quarters of a mile southwest of the mound just described, in open pine woods, in full view from the public road, is a mound of white sand, 9 feet 4 inches high and 150 feet across the circular base. This mound, which had every appearance of being domiciliary, was dug into superficially by us in many places, but no human remains or artifacts were encountered.

About three-quarters of a mile in an easterly direction from the mound just described is another, flat and irregular, evidently domiciliary.

Between these two mounds, though not directly connected with them, are two parallel artificial ridges, about 300 yards apart, extending about NW. and SE., and estimated to be from 3 to 5 feet in height. One is 200 yards, the other 300 yards, in length, approximately. These embankments do not run parallel to an imaginary line connecting the mounds, but cross it and seem to terminate in two small swamps.

The two mounds and ridges are on property belonging to Messrs. H. M. Pfann & Co.

Mound near Frier Cove.

This mound, on property of Mr. Stephen C. Partin, of St. Cloud, Fla., lies about one mile in a southeasterly direction from the cove near the SE. end of the lake. It had been long under cultivation, and, in consequence, was widely spread by the plow. Its height, at the time of our investigation, was 3 feet; its basal diameter, 83 feet. It was pitted and trenched in all directions by us, but yielded only a few, small fragments of human bone and a bit of undecorated pottery.

Mound near Lee's Landing.

Lee's landing is on the eastern shore of Lake Tohopekaliga, and the mound is situated about half a mile northwesterly therefrom, in a beautiful orange grove on the estate of Judge George F. Parker, of Kissimmee. Greatly spread by years of cultivation, its present height is only 2 feet. Its diameter, difficult to determine through irregularity of outline, may be considered about 60 feet.

This mound was carefully excavated by us in parts free from roots of orange trees. Toward the center, badly decayed, was a full-length skeleton on its back, and a second skull, without mandible, lying near the pelvic part. Near this skull was a carefully-made arrowhead or knife, of chert. Nearby were a crushed skull, and parts of two skeletons which, seemingly, had been mutilated by some modern excavation. No earthenware was found.

Mound near McCool's Landing.

McCool's landing is somewhat north of Lee's landing on the eastern lake shore. The mound, on hammock land, on property of Mr. W. A. McCool, of Beaver Falls, Pa., is about half a mile in an ESE. direction from the landing. It is 15 inches in height and 26 feet in diameter, and is thickly covered with small oaks and scrub-palmetto. Numerous carefully-made excavations yielded nothing.

Mound near St. Elmo Landing.

St. Elmo landing is near the NE. extremity of the lake. The mound, on property of the United Land Co., of Philadelphia, is about one-quarter mile in an easterly direction from the landing. Its height is 3 feet, its diameter 75 feet.

Twelve excavations, each about 3 feet square, yielded three bits of undecorated pottery. Presumably the mound was domiciliary in character.

PEACE CREEK AND CHARLOTTE HARBOR.

Leaving the Kissimmee region, we transferred our crew and the colored diggers to our steamer which lay at Fort Ogden, on Peace creek which empties into Charlotte Harbor (see outline map).

The lower part of Peace creek, previously investigated by our agents, was searched by us without discovering aboriginal mounds worthy of extended investigation.

Charlotte Harbor was examined a second time, a former visit having been made in the season of 1900, without material result. A number of reported mounds turned out to be shell-heaps only.

Mound near Hickory Bluff, De Soto County.

The remains of a mound near Hickory Bluff yielded to us only a few fragments of pottery of inferior grade, bearing crude line and punctate decoration, a selection of which is shown in Figs. 1, 2, 3.

Mound in Gasparilla Sound, De Soto County.

On a key believed to be nameless, the first large key north of Boca Grande Pass, in Gasparilla sound, were the remains of a sand burial mound almost demolished by treasure seekers, according to report. A small remaining part, dug down by us, contained the considerably decayed remains of from fifteen to twenty skeletons, some loosely, some closely, flexed; but these burials yielded only a single skull worthy of preservation (Acad. Nat. Sci. catalogue, No. 2227).

The sole artifacts found with the skeletons were three shell drinking-cups,—one imperforate, two with basal mutilation, with one burial; and two perforate ones with another burial. A number of fragments of inferior, undecorated ware lay where former diggers had left them. Two fragments of considerable size, found by us, have rude decoration, and on one is a loop-shaped handle (Figs. 4, 5). Sand tinged with hematite lay in various parts of the mound.

FIGS. 1, 2, 3.—Sherds. Mound at Hickory Bluff. (Two-thirds size.)

FIG. 4.—Sherd. Mound in Gasparilla Sound. (Half size.)

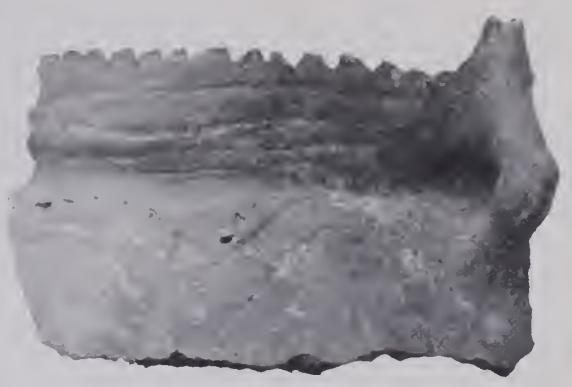


FIG. 5.—Sherd. Mound in Gasparilla Sound. (Half size.)

THE SOUTHERN FLORIDA COAST.

The remainder of the season of 1904 was devoted to exploration of the coast of southern Florida and adjacent islands. We had explored a part of this region in the season of 1900, when we investigated from a point north of Tampa bay southward to Chatham river (see outline map). A report of this work is given in "Certain Antiquities of the Florida West-Coast," Journ. Acad. Nat. Sci. of Phila., Vol. XI.

This season (1904), beginning at Charlotte Harbor, we continued southward through Pine Island sound, Estero bay and along the Gulf coast to the island of Marco, next to the northernmost key of the Ten Thousand islands. From Key Marco our course lay through the keys, including Chokoloskee Key and Lossman's Key, and along the coast to Cape Sable, the southern boundary of the Ten Thousand islands.

Rounding Cape Sable and visiting points of interest on the mainland and

investigating various keys, we continued eastward, then northward, to Miami; to Fort Lauderdale on New river, where the Everglades were visited; and finally, to Lake Worth, which was the southern limit of our work during the season of 1896.

As a result of this part of our journey of the season of 1904, we formed certain conclusions, and fortified others which we had previously expressed in print, namely:

(1) That while the shell deposits of the southwestern coast of Florida are of great interest as monuments of the aborigines, their contents offer little reward to the investigator.[1]

(2) That the sand mounds of the southern Florida coast were built mainly for domiciliary purposes, and that such as contain burials yield but little pottery, whole vessels being practically absent.

(3) That these burial mounds contain but few artifacts of interest[2] and that such artifacts as are met with in the smaller ones, and superficially in the larger ones, are often of European origin, marking a strong contrast with the mounds of the northwestern Florida coast and of St. John's river.

(4) That the failure of the aborigines to place earthenware with the dead, in mounds along the southern Florida coast, did not arise through lack of its possession, but rather that the custom of doing so did not obtain there. Fragments of earthenware, though fewer in number and of far inferior quality on an average than in central and northern Florida, are met with along the southern Florida coast. Similarly, along the whole eastern coast of Florida, entire vessels seem to be absent from the mounds,[3] though inland, in the northern part of the peninsula, at least, whole vessels are fairly abundant.

(5) That while the muck, *i. e.*, mud and organic matter, which fills the canals and small artificial harbors of the Ten Thousand islands, in one instance yielded so rich a reward to Mr. Cushing's labors, it seems likely, as Mr. Cushing believed, that the objects of wood found by him at the town of Marco, Key Marco, were present there through some particular cause. Certain it is that extensive digging in the muck by Mr. Cushing and by ourselves in other localities, yielded nothing of wood, and that ditch-making and the like by the inhabitants of the Ten Thousand islands have brought to light, so far as we can learn, almost nothing of that material. An attempt to duplicate a discovery such as Mr. Cushing's would resemble a search for a needle in a hay-stack.

We shall now describe certain work in detail.

[1] Incidentally it may be said that the great shell deposit on Bullfrog creek, Tampa Bay, described and figured in the Smithsonian Report for 1879, has since been entirely demolished to furnish material for streets of the town of St. Petersburg. It was reported that in the removal of the deposit nothing of interest was found.

[2] It is said that the well-known mound at Miami, when demolished, yielded nothing except human bones.

[3] "Mound Investigation on the East Coast of Florida," by Clarence B. Moore, Phila., 1896. Privately printed.

The late Andrew E. Douglass spent years in investigating the mounds of the eastern coast, from St. Augustine in the north to Miami in the south, without finding an entire vessel.

Mound on Pine Island, Lee County.

Pine Island is a narrow island about fifteen miles long, just south of Charlotte Harbor.

About three miles below the northeastern extremity of Pine Island, just off shore, is a key[1] about three acres in extent, called "Indian Old Field," which is an aboriginal shell deposit with a shell mound upon it.

About three-quarters of a mile in a WNW. direction from the shell key, on Pine Island, was a burial mound of sand, slightly over 5 feet in height and 60 feet across the base. The mound was away from the solid ground, on what is known as a sand-spit, *i. e.*, territory not usually covered by tides, but subject to overflow during unusually high ones,—a curious spot to choose for a place of burial when solid ground was so near.

Near this burial mound is the eastern end of the aboriginal canal that extends across Pine Island, a distance of about two miles, and ends at the huge deposits of shell and mounds of sand, formerly known as the Battey Place,[2] but now called Pineland, on the western shore of the island.

The mound, then on property of the late J. H. Kreamer, Esq., of Philadelphia, was partly investigated by us in the winter of 1900.[3] During this investigation there were found burials at thirty-eight points, loosely-flexed, closely-flexed, and several masses of disconnected bones; also aboriginal disturbances.

With the burials were three "celts" of iron or of steel; glass beads, in three instances; two tubular beads of sheet-silver, with overlapping edges; one kite-shaped pendant of thin sheet-silver, decorated with a cross *repoussé*; a handsome lancehead of hornstone, 4 inches long; a lancehead of chert; two arrowheads of chalcedony; a tooth of a fossil shark, with a perforation. At the beginning of the excavation, at the northeastern side of the mound, were many fragments of pottery belonging to different vessels, placed thickly together; also several shell drinking-cups, and a number of conch-shells (*Fulgur perversum*).

In the winter of 1904 the mound was revisited by us and completely excavated, with the kind permission of Mr. and Mrs. Ferdinand Harrsen, living near-by, who had acquired the property since the former investigation.

This mound, built on lime-rock, was of gray sand except near the base where the sand was black through admixture of organic matter. In this black material, which increased in thickness from a few inches at the margin to about eighteen inches at the center, lay a number of burials, many flexed, some to the left, some to the right. In parts of the base was what seemed to be an inextricable confusion of burials; and the badly decayed condition of the bones and the presence of water, at times, made determination of the form of burial impossible. Nevertheless, it was certain that among the burials were scattered disconnected bones, sometimes singly,

[1] Key, from Spanish *cayo*, "rock," "shoal," "island."

[2] Described by Mr. Frank Hamilton Cushing, "Preliminary Report on the Exploration of Ancient Key Dweller Remains on the Gulf Coast of Florida," Proceedings of the American Philosophical Society, Philadelphia, Vol. XXXV, No. 153, p. 13 *et seq.*

[3] Described in our "Certain Antiquities of the Florida West-Coast," Journ. Acad. Nat. Sci. of Phila., Vol. XI, p. 362 *et seq.*

sometimes in masses. In other parts of the basal area of the mound were single flexed burials, as well as bunched burials with sometimes a single skull and sometimes several crania. There were, also, two closely-flexed skeletons in graves below the base, and among the skeletons at the base, which were somewhat loosely flexed as a rule, were two in a state of close flexion. In the body of the mound, but showing no sign of being intrusive, were two flexed burials and many bunched burials.

As the burials were numerous in this mound, and often encroached one upon another, it was deemed best to score singly such burials as were surely flexed and to keep a tally of the skulls found in bunched burials and where, through commingling of interments, it was impossible to say just what the form of burial had been.

There were, then: four closely-flexed burials and thirty-seven burials loosely flexed; one skeleton with the lower part cut off by an aboriginal grave. In addition, 177 skulls were found. Thus, during our second investigation, burials representing 219 individuals were unearthed.

The bones, as a rule, showed considerable decay. But three skulls were saved in good condition; these, preserved at the Academy of Natural Sciences of Philadelphia, are numbered 2228, 2229 and 2230, respectively.

This mound, following the rule among mounds of southern Florida, where earthenware plays but a small part among objects placed with the dead, contained but one whole vessel—a rude, undecorated bowl, about 7 inches in diameter, imperforate as to the base. This bowl, seemingly, was not associated with human remains.

There were also in the mound, scattered here and there, various sherds, as well as parts of vessels each represented by three or four fragments. In all cases, save one, the ware is inferior.

FIG. 6.—Sherd. Mound on Pine Island. (Half size.)

As might be expected in earthenware found so far south in the peninsula, but little decoration is present on the pottery from this mound. Three or four fragments of one vessel show a roughly executed, incised and punctate design (Fig. 6). The ubiquitous small check-stamp was three times encountered.

One fragment of a rim showed a series of notches, and in two cases the loop-handle decoration was met with, probably from a vessel or vessels similar to one shown in Plate CX. "Twentieth Annual Report of the Bureau of American Ethnology." [1]

With the burials along the base of the mound no implement or ornament of European origin was found, but a slab of pine wood from the basal part of the mound, showed a clean cut which could have been made only with an axe of metal.

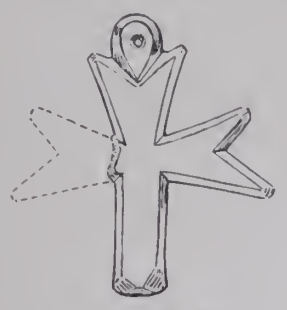


FIG. 7.—Glass cross. Mound on Pine Island. (Full size.)

FIG. 8.—Object of earthenware. Mound on Pine Island. (Full size.)

Also on the base were found: a number of hammer-stones, some large; a bit of stone worked to a cutting edge; a thin, triangular fragment of limestone, above a burial, about 1.5 feet in length as to its sides; a small fossil shark's tooth, near a skull; a number of conch-shells (*Fulgur perversum*); drinking-cups made from the same variety of shell; one *Fulgur* with ground beak, and with body-whorl removed, probably used as a chisel. There was also an implement wrought from the heavier variety of *Fulgur perversum*, with part of the body-whorl removed and a hole below the shoulder, opposite the opening, to allow a handle to pass through at right angles, and another hole above this one and above the shoulder to facilitate the lashing of the handle. That part of the shoulder of the shell which is between these holes is greatly worn by the material used for attachment. The beak is much ground and splintered by use. A description of many shells used as implements by aborigines of southern Florida is given in our "Antiquities of the Florida West-Coast." [2]

Also at the base of the mound were found: a large clam-shell; a shell identified by Dr. H. A. Pilsbry as *Collista nimbosa*, lying beneath the shoulder of a skeleton; and a number of conchs, wrought to a certain extent but not sufficiently to show what their use had been. These conchs, all of which belong to the more delicate variety, may have been drinking-cups partly completed.

With or near burials in the body of the mound were a single glass bead, a considerable number of small glass beads, one large hammer-stone, and one sandstone hone.

There were also, variously distributed with burials, five axes of the type obtained by aborigines from early white traders; three pairs of scissors; two broad chisels; three knives; one pruning knife; one chisel or caulking-knife; one implement 28 inches long, square in cross section, about .75 of an inch in diameter, pointed at one end. This implement, of iron or of steel (as were all the foregoing), presumably intended for a drill, may have seen service as a spear, when hafted.

[1] "Aboriginal Pottery of Eastern United States," by W. H. Holmes.
[2] Journal of the Academy of Natural Sciences of Philadelphia, Vol. XI.

Three beads of sheet-silver, with overlapping edges, somewhat less than 2 inches, 1.25 inch, and 1 inch, in length, respectively, came from various parts of the mound, with or near burials, as did part of a glass cross (Fig. 7); a fragment of an earthenware vessel, about 1.5 inches in length, verging on ovoid in outline (Fig. 8), and a rude though interesting pendant of glass, showing aboriginal work on European material (Fig. 9).

With a burial was a concavo-convex pendant of thin sheet-silver, about 5 inches long, with two holes at one end for suspension (Fig. 10).

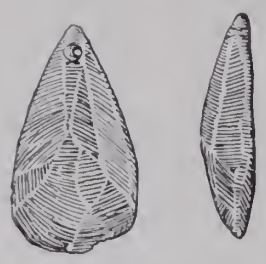


FIG. 9.—Pendant of glass, Mound on Pine Island. (Full size.)

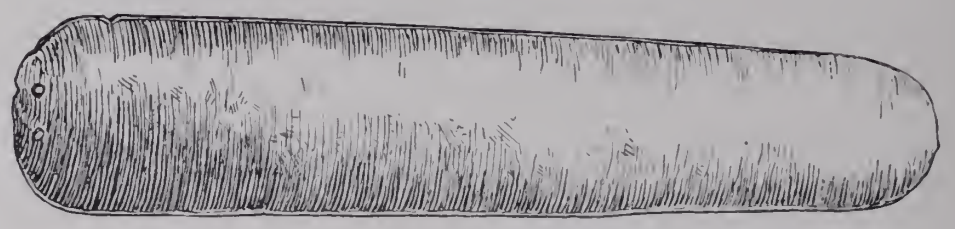


FIG. 10.—Ornament of sheet-silver. Mound on Pine Island. (Full size.)

We have here a good example of a mound distinctly post-Columbian, containing many objects as to the European provenance of which no doubt can be entertained.

MOUND NEAR PUNTA RASSA, LEE COUNTY.

About two miles in a northerly direction from Punta Rassa, in the heart of a mangrove swamp, a mound was reached by rowing up Shell creek a short distance, and then going into the swamp about 300 yards, from the northern side of the creek. The aid of a guide is necessary. The mound, which was kindly placed at

FIGS. 11, 12, 13.—Sherds. Mound near Punta Rassa. (About full size.)

our disposal by the owner, Mr. George R. Shultz, of Punta Rassa, is of pure, white sand. The outline of the base is circular, save at one place, where a sort of flat projection extends into the swamp. The mound is 14 feet 6 inches in height. If

present conditions existed when the mound was built, the sand used in its making must have been carried some distance, perhaps from the creek, as the black muck of the swamp surrounds the mound on every side.

The basal diameter of the mound is hard to determine. Either much sand has washed from the mound, forming a deposit at its base, or a sort of platform was built to serve as a base. The diameter, excluding this deposit or platform, is about 90 feet.

A great hole had been dug into the center previous to our visit.

Throughout the surrounding swamp are shell fields and numerous causeways of shell, extending in all directions. A narrow causeway, with steep sides, about 90 yards long, leaving the northwestern part of the mound, connects it with a large shell field. Another causeway extends from the same part of the mound at a different angle toward the same shell deposit, which, however, it fails to join. A third causeway leads from the mound toward Shell creek, but does not meet it.

A considerable amount of digging by us yielded 7 flexed burials, from 1 foot to 5 feet in depth. No artifacts lay with them, though previous diggers report the finding of many glass beads, and one such bead was met with by us in sand previously thrown out.

A small number of sherds were found, two or three of which are of excellent ware. Several are decorated with the small check-stamp, and others have incised and punctate decoration of inferior execution (Figs. 11, 12, 13, 14).

FIG. 14.—Sherd, Mound near Punta Rassa. (Half size.)

MOUND ISLAND, ESTERO BAY, LEE COUNTY.

This interesting key known as Mound Island, described in a former report,[1] was again visited by us. We learned from Mrs. F. M. Johnson that nothing of importance had been recovered since our previous visit, either from the shell deposits or from the famous sand mound which has yielded so many objects of European manufacture. Mrs. Johnson kindly had saved for us two bird-head decorations which had belonged to earthenware vessels, somewhat similar, though inferior, to those described in our former report as coming from Goodland Point, Key Marco, which also are referred to by Professor Holmes.[2]

MARCO, KEY MARCO, LEE COUNTY.

The Island of Marco (see outline map), otherwise known as Key Marco, is, as we have said, next to the northernmost key of the Ten Thousand islands, a group of keys bordering the southwestern Florida coast for a distance of about 70 miles in a straight line.

[1] "Certain Antiquities of the Florida West-Coast."

[2] "Aboriginal Pottery of Eastern United States," W. H. Holmes, 20th Annual Report of the Bureau of American Ethnology, p. 128.

The town of Marco, at the northern end of the island, is, as previously mentioned, where Mr. Cushing made his great collection of aboriginal objects, mainly of wood. These objects, as the reader is aware, lay in muck which forms the bottom of a small artificial basin in the shell deposit, formerly connected by a short canal with the neighboring water.

It is needless here to dwell on Mr. Cushing's archæological discoveries at Marco, the most important that have been made in Florida, as his preliminary report,[1] which his untimely end rendered final, gives a sufficiently clear description.

There is one point, however, which archæologists would gladly know: How did this great assemblage of objects come to be in this particular spot? Artificial harbors, basins and canals abound among such keys of the Ten Thousand islands as were selected by the pile-dwellers as places of residence, yet, as we have said, no collection of objects has been met with elsewhere in the muck, though considerable digging has been done by explorers and by modern inhabitants of the keys.

Objects of wood dropped or thrown ceremonially, into water, would float; and it is hardly likely that, at periods of low water, objects were buried ceremonially in the muck. It was Mr. Cushing's belief, personally expressed to us, that the objects found by him, contained in houses or in a temple on the banks of the court, or basin, had been forced down by some cataclysm of nature and subsequently held in the muck. This would seem to be a reasonable explanation, and especially so as Mr. W. D. Collier, of Marco, through whose kind permission the basin was examined, informs us that in the year 1873 a

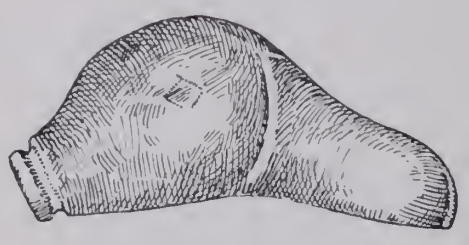


FIG. 15.—Pendant of lime-rock. Marco. (Full size.)

FIG. 16.—Pendant of lime-rock. Marco. (Full size.)

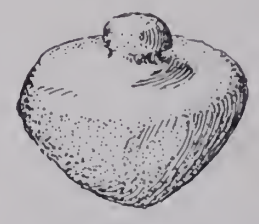


FIG. 17.—Pendant of lime-rock. Marco. (Full size.)

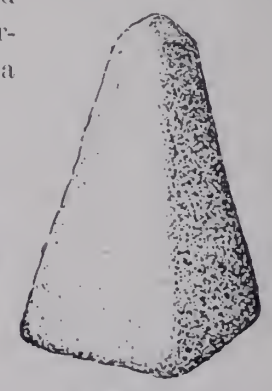


FIG. 18.—Object of clay. Marco. (Full size.)

tidal wave, brought on by a hurricane, did much damage at Marco and submerged the muck-pond in which the objects were found by Mr. Cushing.

On the other hand, it might be asked, if buildings were thus destroyed, why, in view of the preservative qualities of the muck, the debris was not preserved with the objects which were present. On the whole, the question is an interesting one.

A careful search of the surface of the shell fields of Marco resulted in the discovery of a number of tools wrought from entire shells, some of which differ somewhat from those described and figured in our former report on this region. Varieties, hitherto undescribed, from Marco; from Goodland Point, Key Marco; from Chokoloskee Key and from other localities, will be given at the close of this report.

[1] *Op. cit.*

We obtained from Mr. Collier a collection of several hundred pendants or "charm-stones," of shell, of coral, and of the coarse lime-rock found upon the keys. Most of these were of ordinary type, similar to a number figured by us in our preceding report.

FIG. 19.—Pendant of shell. Nameless Key near Key Marco. (About full size.)

One pendant from this lot of surface-finds from Marco, of rather compact, yellow lime-rock, representing the head of a duck, is shown in Fig. 15. Two pendants, one of yellow, one of white, lime-rock, also from Marco, are shown in Figs. 16, 17. A pyramidal object of tenacious clay containing quartz grains and fragments of shell, molded and dried, from the same collection, is given in Fig. 18.

From a nameless shell key, near Marco, a large number of objects, similar in the main to those from Marco, were obtained from Mr. Addison, who lives on the key. One of these specimens is a pendant of shell, which in addition to the groove at one end for suspension, has another groove around the body, the use of which is uncertain (Fig. 19). An implement of bone, from the surface, with four perforations, is shown in Fig. 20.

FIG. 20.—Implement of bone. Nameless Key near Key Marco. (About full size.)

A number of implements wrought from entire shells were found by us on the surface of this key.

FIG. 21.—Pendant of earthenware. Goodland Point. (About full size.)

GOODLAND POINT, KEY MARCO.

From Goodland point, five miles below the town of Marco, where many objects of interest were procured on our previous visit, we obtained a limited number of pendants, sinkers, etc., of stone, of shell, of coral, and one (Fig. 21) made from a fragment of an earthenware vessel. Many implements wrought from entire shells, were gathered by us from the surface at this point.

WIGGINS KEY, LEE COUNTY.

The only object of interest obtained by us on Wiggins key is a pendant of shell, having a perforation in addition to the groove at one end (Fig. 22).

FIG. 22.—Pendant of shell. Wiggins Key. (About full size.)

CHOKOLOSKEE KEY, LEE COUNTY.

The interesting Chokoloskee key, described in our previous report, has been determined, by a recent survey, to be in Lee county, and not in Monroe county, as was formerly believed to be the case.

A search, extending over a number of days, yielded many fine implements wrought from entire shells; also a number of pendants, etc., were obtained from persons inhabiting the key. Among these was a carefully wrought pendant of lime-rock (Fig. 23), presented to us by Doctor Green, postmaster of Chokoloskee, and two pendants of shell, one heart-shaped (Fig. 24), the other showing a method of suspension entirely novel in our experience of objects of shell (Fig. 25) and unusual in pendants of stone, consisting of a perforation, beginning near the end at one side, and coming out at the top. Another fine pendant of shell from this place is shown in Fig. 26.

FIG. 23.—Pendant of lime-rock. Chokoloskee Key. (About full size.)

FIG. 24.—Pendant of shell. Chokoloskee Key. (About full size.)

FIG. 25.—Pendant of shell. Chokoloskee Key. (Full size.)

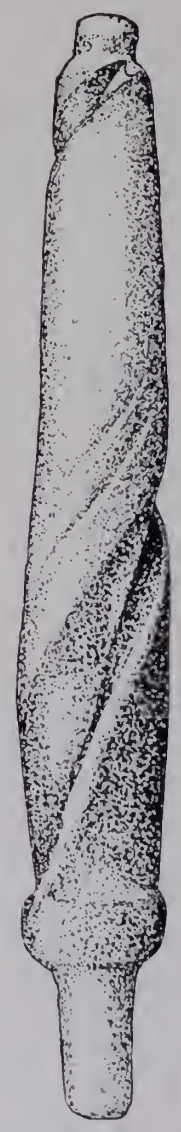


FIG. 26.—Pendant of shell. Chokoloskee Key. (Full size.)

A novel object from this key is an oyster-shell having a central perforation and, in addition, a groove at one end, as shown in Fig. 27. Presumably a handle, passing through the hole, was lashed to the shell at the groove to form a tool. A part of the shell, broken from the edge back, lends support to this supposition.

At our former visit to Chokoloskee key we made the acquaintance of Mr. C. G. McKinney, then living there. Mr. McKinney had for a long period paid close attention to aboriginal objects found upon the key. We were informed by him that, of the very many objects known as "sinkers" found on the key, none had been met with near the water, and that he was firmly convinced that these so-called "sinkers" had a use other than one pertaining to the taking of fish.

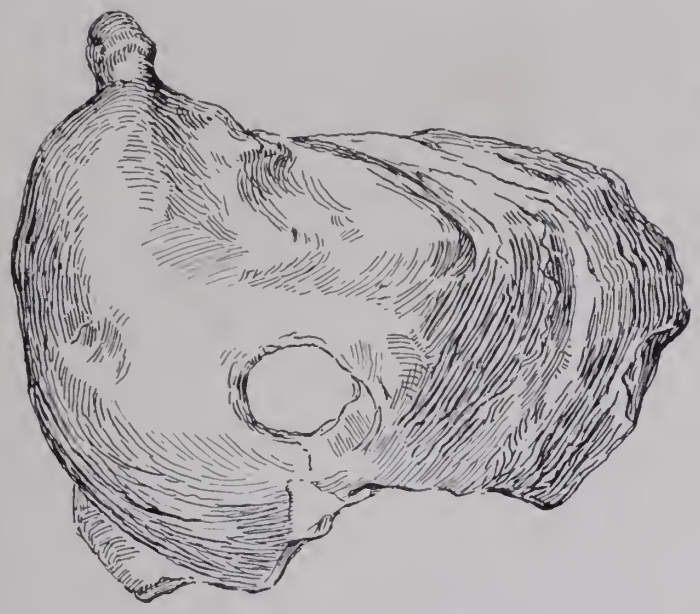


FIG. 27.—Implement of shell. Chokoloskee Key. (Full size.)

FIG. 28.—Object of black mangrove wood. Chokoloskee Key. (Half size.)

FIG. 30.—Cup of wood. Chokoloskee Key. (Full size.)

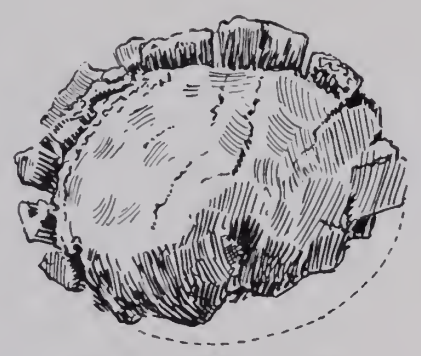


FIG. 29.—The same, end view.

In one part of the key is an interesting artificial harbor, which, no doubt, served as a shelter for canoes in aboriginal times. This harbor, protected from open water by an embankment of shell, save at a narrow entrance, was on property owned by Mr. McKinney, who, controlling the water by the insertion of a sluice, dug many trenches in the muck with the idea to pile this material above water level, and thus to gain a rich area for cultivation.

In the course of this work, Mr. McKinney, whose archæological interest was ever alert, came upon three objects of wood, which are now in possession of the Academy.

One of these, of black mangrove, shown in Figs. 28, 29, was burnt somewhat

on one side by a person to whom it was entrusted by Mr. McKinney. This object, which was about 2 feet down in the muck, became cracked superficially in drying, in a way that might seem to represent carving in the figure. It has a central groove surrounding it and shows work of a blunt tool over both terminal surfaces. In shape the object resembles the head of a mace, for which the heavy mangrove wood would be especially fitted; but in the case of a mace there would be no cause to remove the handle. Possibly the object was used as a sort of hammer, with one end blunt, the other pointed, and was fastened at a right angle to a handle by means of the central groove.

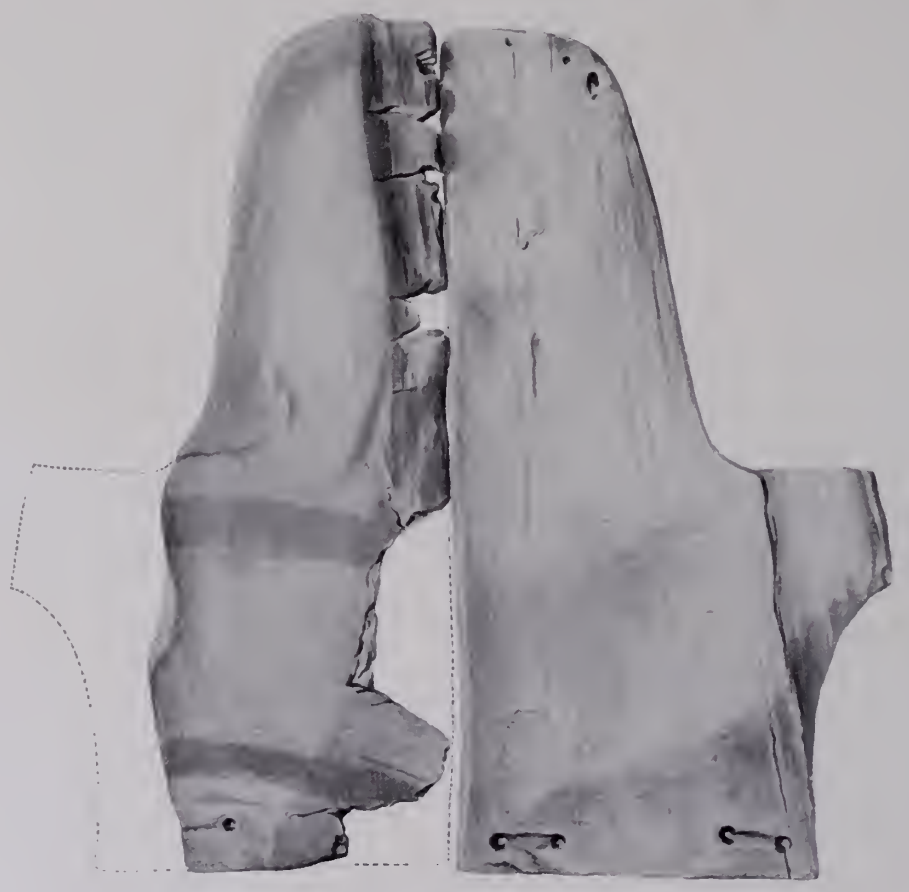


FIG. 31.—Object of wood. Chokoloskee Key. (Half size.)

A cup of a soft wood was found in the muck by Mr. McKinney (Fig. 30).

Another object, in two parts, also of a soft wood, is shown photographed from a sketch in Fig. 31. There has been a rude decoration in black pigment, still discernible in places. Holes for attachment are at the base. The purpose for which this object was made is problematical.

LOSSMAN'S KEY, MONROE COUNTY.

After investigating a number of keys which yielded nothing of interest from an archæological point of view, Lossman's key, one of the largest, if not the largest key of the Ten Thousand islands, was visited. At the northern extremity are large, level causeways and platforms, of shell, a thorough survey of which would be of interest.

South of Cape Sable and eastward among the keys and northward to Lake Worth, where our journey ended, we met with nothing of especial archæological interest. After leaving the Ten Thousand islands, no shell keys were met with by us during an extended search, all islands being of sand or of lime-rock.

IMPLEMENTS WROUGHT FROM ENTIRE SHELLS.

We shall now describe in detail certain implements of shell found by us during the expedition of 1904, which differ somewhat from implements of the same type described in our report on "Certain Antiquities of the Florida West-Coast."

FIG. 32.—Shell implement. Russell's Key. (About full size.)

FIG. 33.—Shell implement. Marco. (About full size.)

Fig. 32 represents a fractional part of a massive *Fulgur perversum*, of a type similar to that shown in Fig. 37 of our previous report, where a hole to the right, and a notch to the left, of the axis, enabled a handle to pass behind it. In this case, however, an additional perforation, much worn, behind the axis, is present, and probably corresponded with a hole since broken away through use. When this happened, presumably, the use of the hole back of the axis was abandoned, and a new hole to the right and a notch to the left were added. This implement, which was found on Russell's key, Ten Thousand islands, probably served as a hoe.

FIG. 34.—Shell implement. Cutler. (About full size.)

In Fig. 33 is given a *Fulgur perversum* from Marco, showing the usual removal of part of the body-whorl back from the edge of the aperture. There is a small hole above the shoulder, or periphery, which seems, as a rule, to have had no connection with the tool, inasmuch as numbers of shells, not made into implements, show a similar perforation, which may have been made to sever the muscle and free the shell-fish from its shell. The feature of this particular implement is two small, circular holes, side by side, in the back of the shell, facing the notch in

front. Possibly as one hole may not have given the desired angle for the handle, another hole was added.

Fig. 34 illustrates a *Fulgur perversum* from Cutler, on the mainland of the eastern coast, Dade county. It shows the usual removal of part of the body-whorl at the edge of the aperture, but no perforation above the shoulder. There are three perforations almost in line in the body-whorl, and a notch at the edge of the aperture. It would seem that the central hole which faces the notch, having become broken, was abandoned with its corresponding notch, and that two new holes were made for attaching the handle.

Fig. 35.—Shell implement. Battey Place. (About full size.)

The implement shown in Fig. 35, wrought from a comparatively small but heavy shell of the same species as the last, is of an ordinary type of which, in addition to the removal of part of the body-whorl, at the edge of the aperture, another part is cut away within, laying bare part of the axis. A single perforation in the body-whorl faces the notch. The peculiarity of this implement is the presence of two small perforations above the shoulder, in line, one on each side. These perforations are smaller and more regularly made than the single ones of which we

have spoken as made, possibly, to free the shell-fish from the shell. Moreover, there are two holes instead of one. One, above the main hole in the body-whorl, could have aided in attaching the handle, but the other hole is shut off from the handle by the convolution of the shell. This implement is from the Battey place, Pine island, Lee county.

FIG. 36.—Shell implement. Chokoloskee Key. (About full size.)

We come next to a *Fulgur perversum* from Chokoloskee key, shown in Fig. 36, which has the usual removal of part of the body-whorl. There is but one perforation, which is to the right of the aperture. This hole, which shows no wear, cannot have been used for the insertion of a handle, as there is no corresponding hole

on the opposite side, and no notch. Moreover, the hole is not in line with the required position for a notch. The cutting edge of the beak, however, shows considerable wear. Presumably, this implement was held directly in the hand.

The implement shown in Fig. 37, a heavy *Fulgur perversum*, with part of the body-whorl removed, and a small, irregular hole above the shoulder has four perforations in line in the remaining part of the body-whorl, extending from the aper-

FIG. 37.—Shell implement. Chokoloskee Key. (About full size.)

ture around from left to right. The first and third holes are in line for a handle, as are the second and fourth. The third hole corresponds also with a notch in the edge of the aperture. This implement, which has a fine edge, probably served as a gouge. Like the preceding example, it came from Chokoloskee key.

In the collection is an implement from Goodland Point, Key Marco, in every

way similar to the foregoing save that the notch is absent. It lay on the surface, as was the case with all the implements described in this collection.

A badly battered *Fulgur perversum*, which probably served as a hoe, came from Chokoloskee key (Fig. 38). The body-whorl has been cut away a number of inches back. The rude hole above the shoulder is present. There are three holes in line somewhat below the shoulder, and a notch. The first and third holes, counting from left to right, allowed a handle to pass to the right of, and behind, the axis, but as parts of the shell gave way at the third hole, this hole

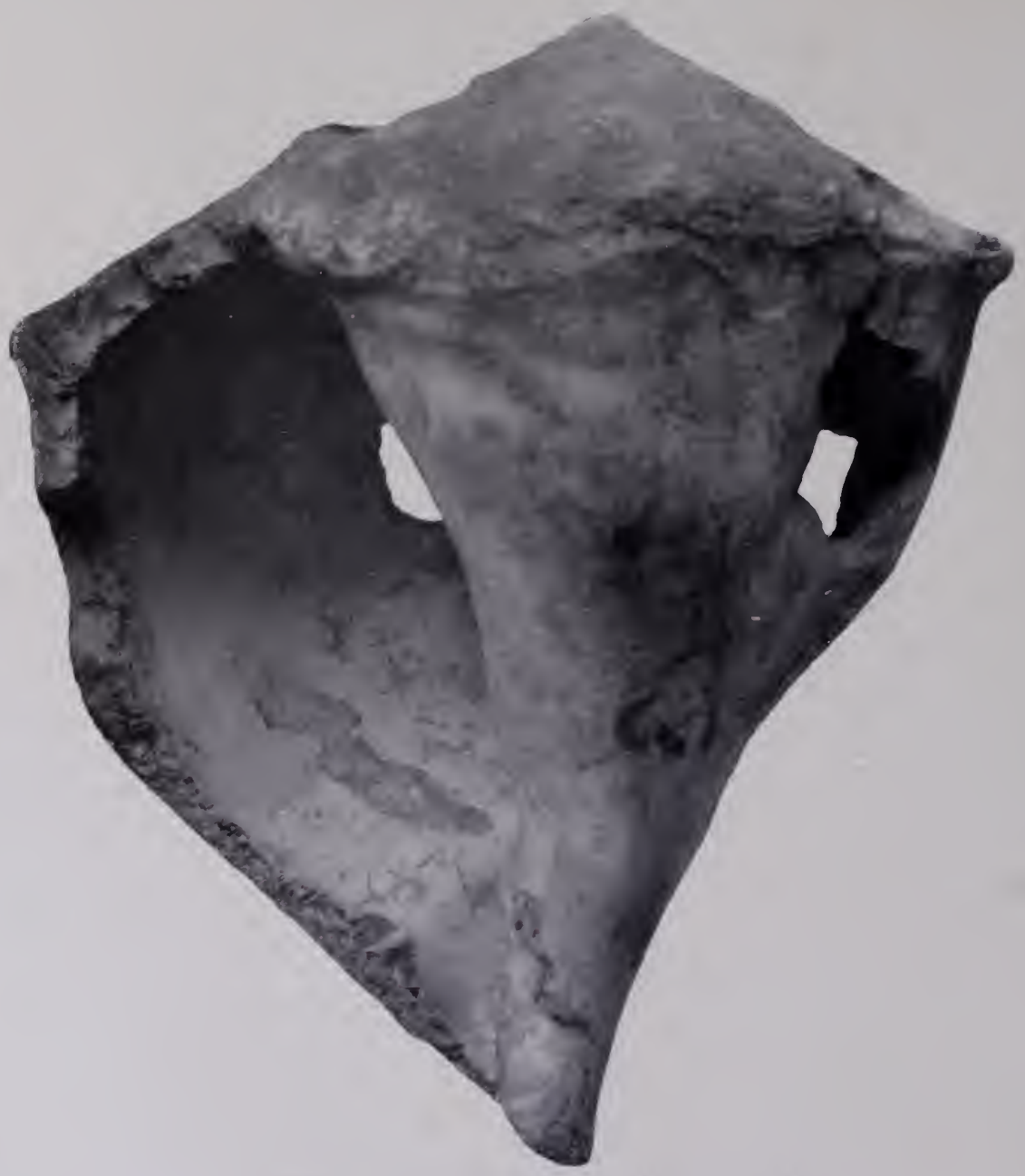


FIG. 38.—Shell implement. Chokoloskee Key. (About full size.)

FIG. 39.—Shell implement. Chokoloskee Key. (About full size.)

FIG. 40.—Shell implement. Chokoloskee Key. (About full size.)

became useless, and, consequently, the corresponding hole became unserviceable. The tool was then utilized by making hole number two and a corresponding notch.

There is represented in Fig. 39 a *Fulgur perversum* with cleanly-ground edge at the beak, having the customary rough perforation above the shoulder, or periphery. The body-whorl is in part removed. There are two evenly-made perforations to allow a handle to pass to the right of, and behind, the columella, but there is also a notch which does not correspond with either hole. This implement came from Chokoloskee key.

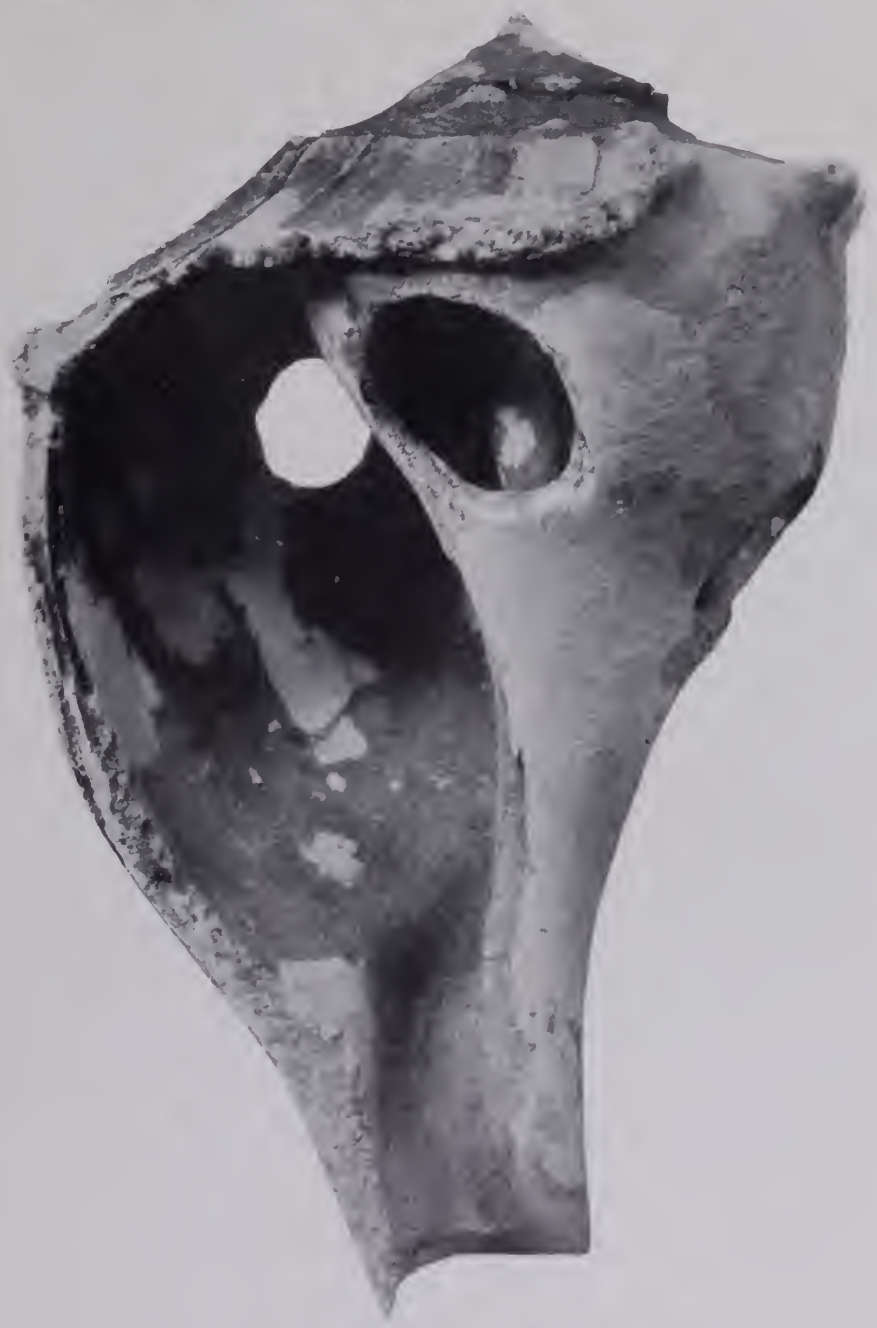


FIG. 41.—Shell implement. Fikahatchee Key. (About full size.)

FIG. 42.—Shell implement. Goodland Point.
(About full size.)

FIG. 43.—Shell implement. Goodland Point.
(About full size.)

Fig. 40 shows a *Fulgur perversum*, from the same key, with the hole above the shoulder and the body-whorl removed in part from the edge, backward. Also, as is often seen in these tools of shell, a part of the body-whorl has been cut away, exposing the upper third of the columella. There are three perforations, almost in line, somewhat below the shoulder. Numbers one and three from left to right would allow a handle to pass behind and to the right of the columella; hole number two probably corresponded with a notch on the edge which has been broken away.

Fig. 41 illustrates a *Fulgur perversum* from Fikahatchee (sometimes spelled Fakahatchee) key,[1] Ten Thousand islands. The perforation above the shoulder is present; the body-whorl has been removed several inches from the edge, backward. The beak is ground to give an excellent cutting edge for a gouge. There are two holes through which a handle could pass to the right of the axis and behind it: and there is a circular hole in the body-whorl to the right of the aperture, the use of which is not plain. This latter hole corresponds with neither of the other two holes and is entirely out of line for a notch, which, moreover, is not present. It is possible that this implement belongs to the type, where part of the body-whorl, above, has been removed, perhaps to facilitate attachment of the handle; but if so, the hole is much more evenly-made and rounder than is usually the case in openings of this kind.

Fig. 42 shows a type of implement found in abundance among the Ten Thousand islands, consisting of *Fasciolaria*, with much of the body-whorl removed and two perforations behind, to allow a handle to pass at an upward angle, behind the columella. A round hole is present in the body-whorl in front, evidently to aid in attachment. This specimen, which was used as a hammer, came from Goodland Point, Key Marco.

Fig. 43 represents an implement from Goodland Point, which, though shown in a different position, is similar to the one last described, save that it has a beautifully-ground, cutting edge for use as a chisel. This specimen is the sole example of this type that we have met during our two expeditions through the Ten Thousands islands.

Incidentally, it may be said that, as can be seen by referring to our "Certain Antiquities of the Florida West-Coast," page 393, the *Fulgur carica*, or *Fulgur* with the aperture to the right, is not found on the western coast of Florida, and hence the aborigines of that region were restricted to *Fulgur perversum* and *Fasciolaria* for use as implements.

On the eastern coast of Florida *Fasciolaria gigantea* is infrequently met with, and *Fulgur perversum* is far less massive than is that shell on the western coast of Florida. Therefore, on the eastern coast the aborigines were almost restricted to *Fulgur carica* in the manufacture of implements destined for heavy work.

All over Florida, however, *Fulgur perversum* was used for drinking cups, and "celts" made from the lip of the massive *Strombus gigas* are found.

[1] *Op. cit.*, p. 377.

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